

AMIGA USER

INTERNATIONAL

Incorporating Commodore Business Magazine

OCTOBER 1988

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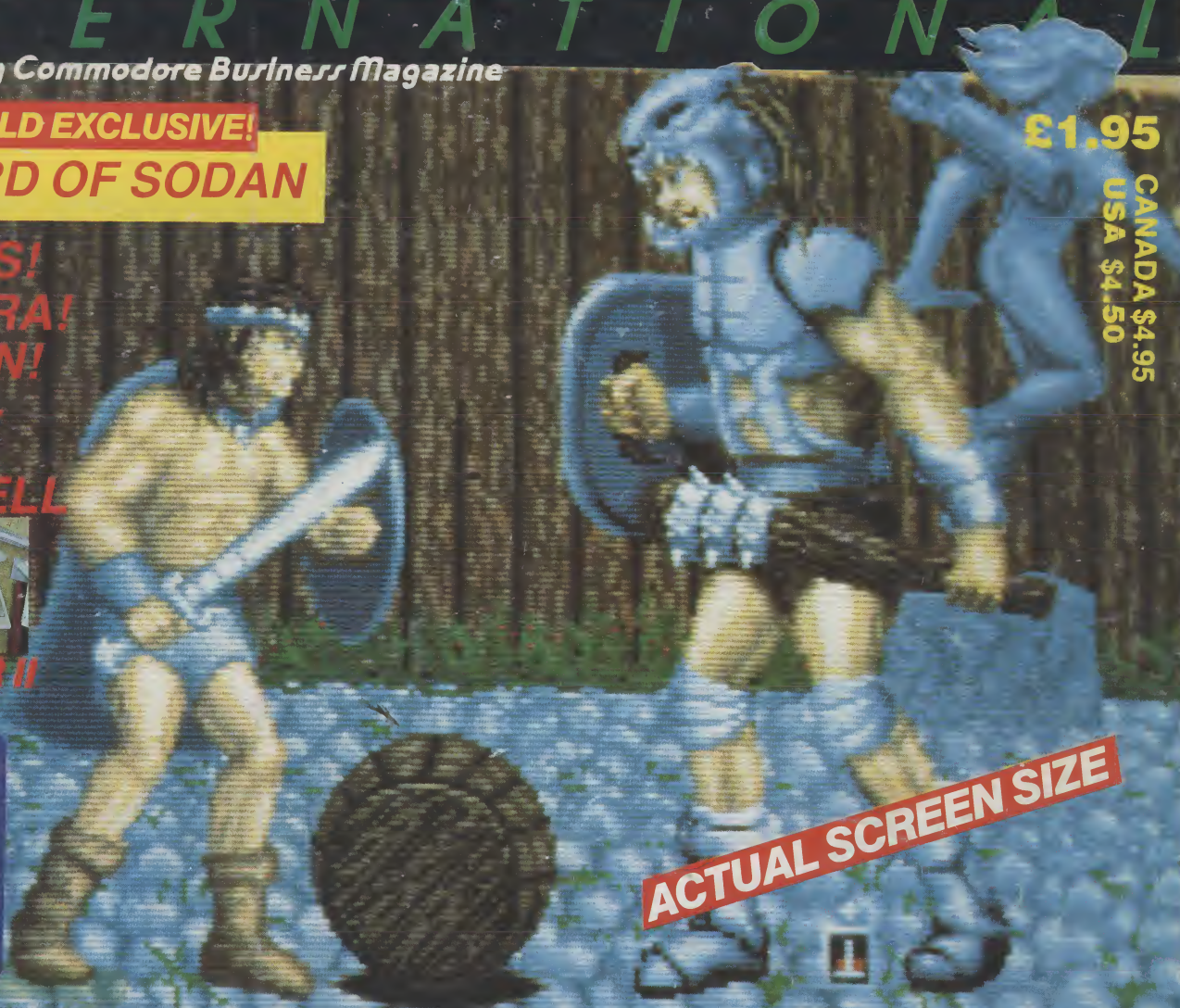
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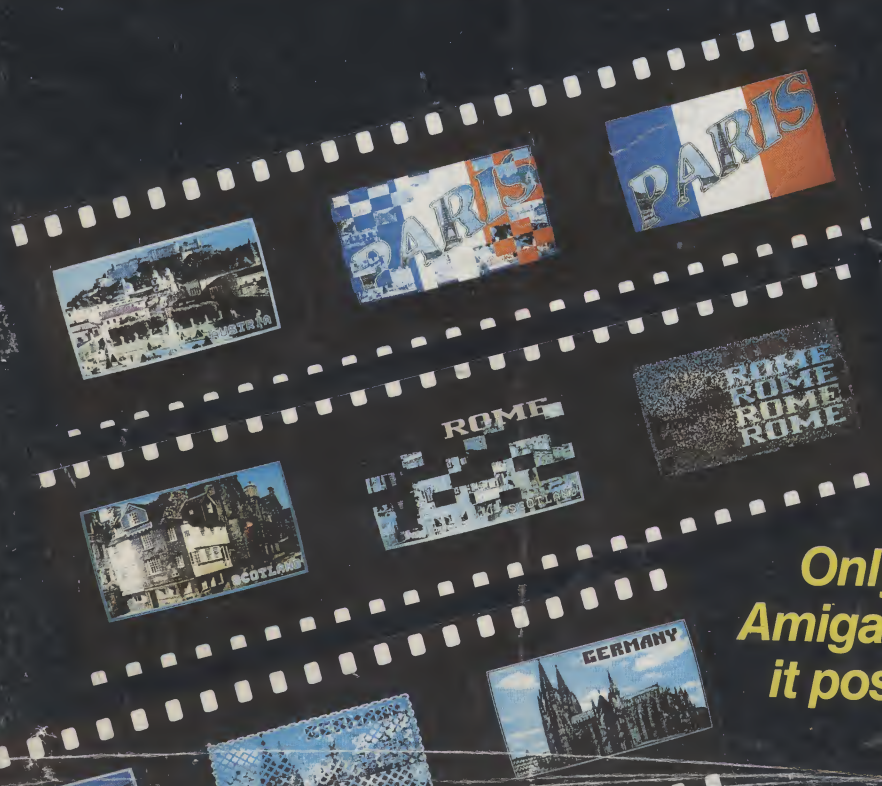
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THE AMIGA DIMENSION

ONLY THE AMIGA MAKES IT POSSIBLE

Pictures from thin air... sounds like an amazed description of early TV doesn't it? It is really a piece of Amiga magic that lets you snatch photographs through a radio receiver onto your screen or printer. And if you look on page 18, you will see another example of 'Only the Amiga makes it possible' wizardry. Discovery Software's Sword of Sodan is, even in Amiga terms, an extraordinary achievement. Huge figures, cleverly animated, it is a game whose graphic brilliance may well equal the impact

made by Defender of the Crown in its day. The coverage for both these is exclusive to AUI. Neither development could have been attained in the early Amiga days. It takes time for the knowledge and experience gained with a computer to flow through. For the Amiga we are beginning to see development which can only arrive in second generation products such as CygnusEd. Zing/Spell and Ultrados - all reviewed in this issue. Even such esoteric languages as ARexx, used largely on mainframes -

and PC compatibles - are emerging on the Amiga. It may seem a strange thing to say about a computer that is only just earning recognition as successful in the sceptical world of computing but it appears that the Amiga Dimension is genuinely maturing, moving into a new phase. Programmers are beginning to feel at home with their Amigas and the true light of the Amiga is starting to shine through.

Antony Jacobson, Managing Editor and Publisher

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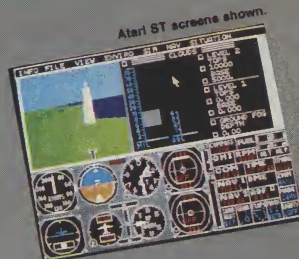
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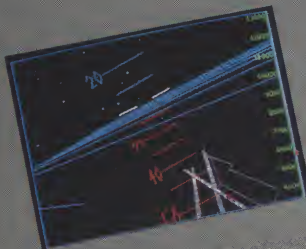
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Control Centre

The A500 Control Centre from Premier Micros is a light-weight, aluminium housing for the Amiga A500. The idea of the Control Centre is to allow the user to easily incorporate most popular makes of both 3.5" and 5.25" disk drives or even a hard disk. These are situated on an integral shelf located behind and above the row of function keys on the Amiga 500. A monitor can also be placed on top of the unit itself. The result is a tidy arrangement with obvious advantages. The unit also features mouse/joystick ports on the right hand side. Premier tell us that the A500 Control Centre should soon be available from all good Amiga stockists. Price: £49.95.



Video Transport

The latest addition to the Photon Video range from Microillusions is Photo Video Transport Controller. It allows you to regulate external video tape frame by frame controllers. It supports the Lyon-Lamb and Video Media's V-Lan systems and may be upgraded to accommodate new controllers at any time.

Transport Controller can be programmed to record from one to 300,000 frames each time an image is displayed, resulting in a smooth animation sequence. The editor allows you to stretch short real-time animations into longer sequences. IN and OUT

edit points can be set by using either the keyboard or the mouse.

The program gives you full manual control over the tape machine when you want it. The Time Lapse utility allows you to create time lapse sequences. It fully supports multi-tasking and uses less than 50K of memory (which is less than 10% of graphics memory on a 1MB Amiga).

Photon Transport Controller is designed to work with Photon Video Cel Animator, which, in turn, is compatible with Photon Paint.

Price: \$299.95
Contact: Activision UK, Units 3-4 Lloyds Close, Finedon Road Ind Estate, Wellingborough, Northampton NN8 4SR. (0933) 76768.

Kodak Cassettes

Kodak is offering a pack of three video cassettes with every order for ten boxes of diskettes from Action Computer Supplies. Two of the video tapes in each pack are blank and the third one features the Prince's Trust Gala Concert.

The offer applies to the Kodak 3.5", 80-track, double-sided, 1MB diskettes which cost £21.40 per pack of 10, as well as their 5.25" DS/HD, 1.2/1.6MB diskettes, at the same price.

Contact: Action Computer Supplies, Abercorn Commercial Centre, Manor Farm Road, Wembley, Middx, HA0 1WL. Tel: 0800 333 333.

Sex Vixens from Space

Free Spirits Software's Sex Vixens from Space is now available with graphics for the Amiga. This popular game was originally released as a text adventure for the C64 and Apple II. The Amiga version contains over 30 graphic screens and, say Free Spirit, all the humour and challenge of the original versions.

In Sex Vixens the player is Captain Brad Stallion, owner and operator of the one man

space vehicle known throughout the Galaxy as the "Big Thruster". The player is assigned to a high priority mission by the Federated Government. The Federated Government has long been harried by raids on the male population by of its colonies. It is rumoured that these raids are conducted by "The Tribe", a colony of beautiful, sex-starved female clones from the mysterious planet Mondo. The player's mission is to locate the colony and destroy the deadly Sex-Ray gun. Price: \$39.95.

Photon Paint Expansion Disks

Microillusions have produced two expansion disks for use with Photon Paint. This expansion package is designed to save time for the Photon Paint artist who wishes to use wood or marble surfaces. We are told that nearly every type of wood or marble surface is available on the disks. The

idea is to load in the file you wish, capture a brush, wrap it on a 3D shape such as a ball or tube, or tilt it with full perspective. By using the blend mode with the dither or luminance features you can create realistic columns of marble with proper hi-lites, a tile floor that has depth, or even wood panelling. All of the surfaces were digitized.

Price: \$29.95
Contact: Activision UK, Units 3-4 Lloyds Close, Finedon Road Ind Estate, Wellingborough, Northampton NN8 4SR. (0933) 76768.

Mobile Workstation

A new mobile PC workstation, the ABA Shuttle, has the printer shelf mounted above the VDU for easy access. The stout steel frame of the Shuttle ensures a high degree of stability and is angled to ensure totally unobstructed paper feed and collection.

The base is fitted with castors, two of which have 'snap on' locks and the unit is supplied with a three-socket power outlet and 3 Metres of cable. Overall dimensions are 650mm x 800mm x 1200mm. Finished in White and Chrome, the ABA Shuttle is available from Action Computer Supplies. Price: £269.00.



Lattice ADA Compiler for PCs

Lattice Inc. of Illinois, has announced that it has purchased all rights to the Artek Ada compiler. Lattice will complete development of language features required for US Government validation and will add new features to enhance the compiler. An Ada interpreter will be offered in late 1988.

According to Robert Hansen, Lattice Vice President of

Engineering, in addition to the functions required by the US Government for validation, the Lattice Ada compiler will feature an integrated environment consisting of the screen editor, Lattice Make Utility, Lattice Linker, several text handling utilities and the Lattice full-screen source level debugger.

A Lattice Ada Interpreter will be included in the compiler and will also be available separately. The interpreter can be used as an introduction to Ada or as a development tool. Because it will include the complete set of validatable

DeluxePrint II

DeluxePrint II is the new version of the Amiga printing program in the DeluxeCreativity series. It offers a large collection of graphics tools for quick design work, along with built-in borders and formats making it perfect for people who want to make cards, calendars, posters, banners, signs, labels – or just about anything else you can put in the printer.

DeluxePrint II has been enhanced to support 32 colour, low resolution images and to fully exploit the colour printer, allowing for more interesting

designs. It can also create subtle images on black and white printers with complete control over grey scales.

DeluxePrint II features an improved user interface, making the program more Amiga-like with standard file requestors and menu bar. The program is packaged with a free bonus art disk, containing over 30 extra large graphic images, 20 DeluxePaint II images for special occasions or holidays and 30 complete, pre-built cards, banners and calendars and over 200 easy to edit graphic images, borders and backgrounds. Price: £49.95. Contact: Electronic Arts Ltd., 11-49 Station Road, Langley, Berks. SL3 8YN England. Tel: (0753) 49442.

Emerald Intelligence Research Grant

At a ceremony held in the Henry Ford Museum in Dearborn, Michigan, Emerald Intelligence received funding for the MEXI research proposal from the Michigan Dept. of Commerce State Research Fund.

The focus of the MEXI (Multiple Expert Integration) proposal is to explore the feasibility of harnessing parallel processing technologies with a microprocessor-based expert system shell. Emerald Intelligence currently produces MAGELLAN, an expert system generating tool for the Amiga designed to allow users to build knowledge bases quickly through a mouse and window, graphically-oriented

interface. Knowledge is stored in an IF-THEN rule format, which can be edited and corrected easily. MAGELLAN runs on any Amiga model with at least 512K.

The MEXI project is scheduled for completion in March 1989. Ultimately Emerald Intelligence hopes to integrate parallel processing technology and its time saving features into the MAGELLAN product line, making MAGELLAN the first commercially available expert system tool using parallel processing. An AREXX interface will be packaged in the first revision, expected in early October 1988.

Emerald Intelligence was established in 1985 in Ann Arbor, Michigan to develop expert system tools and applications which are practical and affordable. Price \$195. Contact: Emerald Intelligence, 334 South State Street, Ann Arbor, Michigan 48104. Tel: (313) 663-8757.

Ada functions, programs created using the interpreter can be compiled with the Lattice Ada Compiler or any validated Ada compiler. Like the compiler, the interpreter will also include a complete set of integrated utilities.

"Ada is the language of the future," Lattice told **AUI**, "It is a very powerful language, yet because it is an object oriented language, it reduces the complexity of creating programs that interact with

complex software sub-systems such as MS-windows and the OS/2 presentation manager. Its extensive complement of functions make it equally well suited to both systems and application programming."

Price: Interpreter – £59, Compiler – £395. Contact: Roundhill Computer Systems Ltd., Axholme, London Road, Marlborough, Wiltshire SN8 1LR, England. Tel: (0672) 54675.

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PC Interference

The US Federal Communication Commission have been carrying out spot checks on personal computers to find out how many of them actually comply with Government regulations. Under US law, manufacturers must ensure that radio emissions from PCs fall below a level which will cause interference to various radio broadcasts and TV stations. The results of the checks showed that up to 75% of the PCs being sold in the US are on the market illegally. According to the FCC it is not uncommon for a manufacturer to submit a specially modified version of their PC for examination by the Commission to gain clearance for sale. They say that top of the list of offenders are the small foreign computer companies but even some of the large US companies are said to have failed the checks. These results were born out by a company called Haar Industries who tested 150 computers from both large and small manufacturers and found only one that fell inside the legal limits. The FCC have the power to punish offenders with heavy fines and to confiscate equipment. At the Comdex show they confiscated equipment worth almost \$100,000. The FCC are among the computer trade shows' most regular attenders.

Supra Auto-booting Hard drives

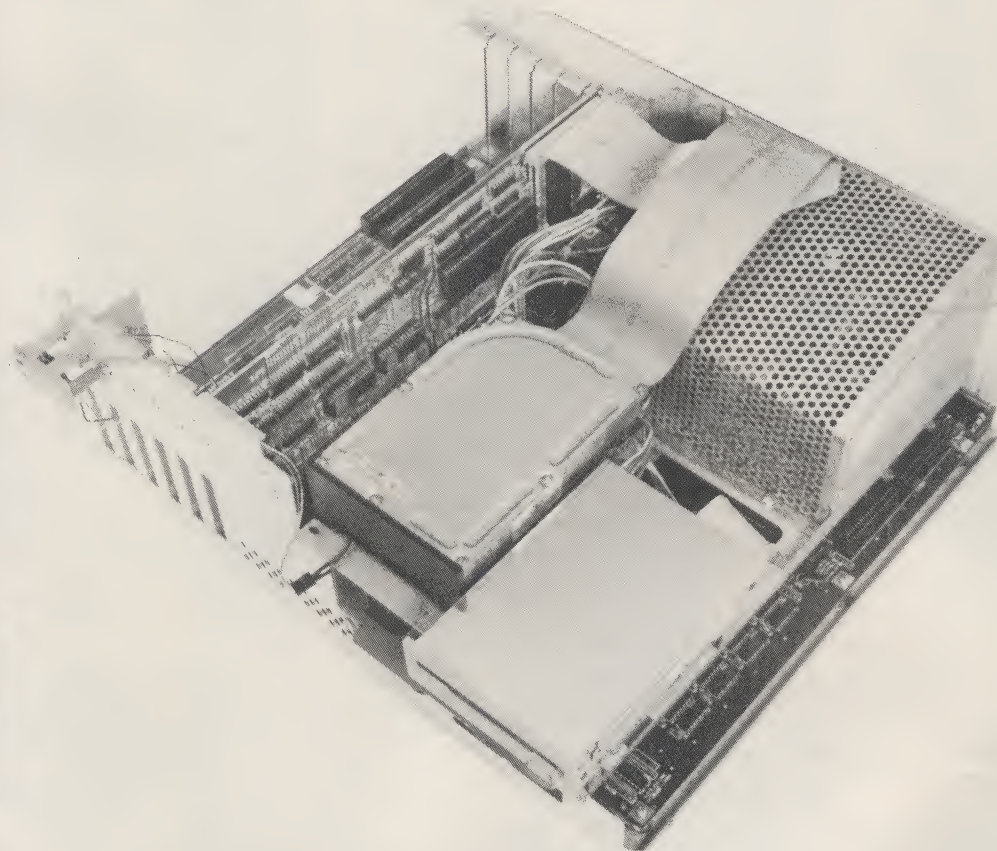
The latest addition to Supra's hard disk line is the SupraDrive for the Amiga 2000, a high-performance hard disk system featuring autobooting, fast access time and Supra's hard disk software and technical support. It comes in 20,

30 and 60Mb capacities and prices start from £599. The SupraDrive for the Amiga 2000 features true, complete DMA access and an external SCSI port allows connection of additional SCSI devices to the system. The SupraDrive is completely compatible with RAM boards, digitizers and the Amiga Bridgeboard and it supports MS-DOS partitions when a bridgeboard is used.

Special Supra interface kits

are also available for those who already have a hard disk they plan to mount internally.

The 64-page SupraDrive Operator's manual explains the software in detail and provides numerous tips and suggestions for using a hard disk to optimize an Amiga's performance. Contact: Precision Distribution Ltd, 6 Park Terrace, Worcester Park, Surrey LT4 7JZ, England. 01-330 7166.



Serious Business

Once more, the Serious Micro User Group (SMUG) reaches out to micro users throughout the West Midlands, with their bi-annual Computer show. Computer club '88 provides an opportunity for computer enthusiasts of all ages and interests to get together in Walsall, near Birmingham, West Midlands. Attractions provided will include communications, desktop publishing, computer music, computers and Amateur Radio, applications, games, public domain software, a raffle and a bring-and-buy stall where visitors may put up their spare

equipment and software for sale. The accent is on serious home use but there will also be plenty to interest the games player or small business user.

The venue for Computer Club '88 is the Blue Coat Comprehensive School, Birmingham Street, Off Springhill Road, Walsall, West Midlands. Computer Club '88 will take place on Saturday, 15th October, between 10am and 4pm.

Women in Computing

The first meeting of Women Into Computing (WIC) was held at Lancaster University

Craps Academy

Microillusions have released Craps Academy, the second lesson in corruption in the Micro-vice series. With Craps Academy you can learn the ins and outs of professional

recently, where the main topic of discussion was the problems faced by women in the computer industry. The success of the meeting has led to plans for a national UK group, meeting three times a year. There are also plans for an on-line database of contacts which can be accessed by members of WIC.

dicing. The pop up help section assists you in understanding the layout of the table and explains to you how to place your bets. Once you have become familiar with the system, you can move on to the heart of the game. Learn about payoffs, house percentages, betting systems, money management, play strategy, optimal bet size and all the buzz words necessary to show that you are a real pro.

Craps Academy also lets you choose the rules of your favourite gambling Mecca, from Las Vegas to Atlantic City. You can even adjust the rules to simulate a specific casino, or design your own. The game is for one to four players. Price: \$39.95

PROGRAMS

DISK X 2.2 with BOOTSAVE

This latest version includes a radical new virus protection ability. Now, use Disk X to copy boot blocks of commercial software to a "safekeeping" disk. If the commercial software is ruined by a virus, copy back original boot block to restore!

VIRUS X 1.5

There are at least two new, nasty viruses out there. This latest incarnation of Virus X finds them.

READER

Display any file with an icon. It's beautiful! Enter a simple tool command on the file's INFO screen. Thereafter, clicking the icon calls the file to read.

NFL ORACLE 88

A clever NFL pick'em program. Despite last year's player strike, the 1987 version of this football program picked better than 60% winners in games 4 through 16. Can NFL88 do better this year?

BARTER

Enrich thyself or go broke in this mercantile adventure.

FCOMP

Assembly file comparison utility. With source code.

FORMAT

A mighty mile. It will reformat ED files to line widths from 5 to 240 characters.

REPSTRING: String replace utility

GUTS: A poker variation

SQUARES: A hip game for two

READING TEST: Colors and numbers

SLIDERS: Games

HONEYCOMB: Puzzle

For the

AMIGA

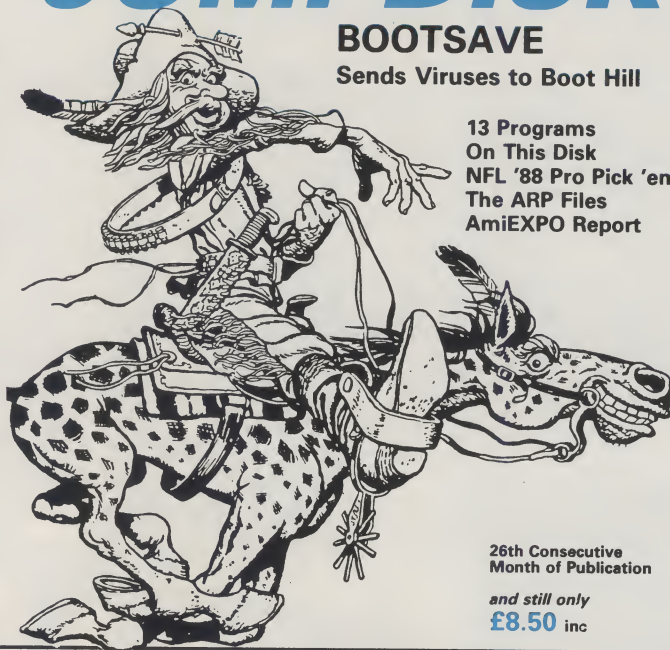
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JUMPDISK

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They're on this disk. Even better, there's a batch file that will automate transfer to a copy of your Workbench.

THE ARP MANUAL

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JUMPDISK

This issue of JUMPDISK is a must for any software collection. At last it's possible by using DISKX2.2 to save the boot blocks of commercial software. We have also included VIRUSX1.5 which will detect even the latest strains of virus from Europe. Subscribers to JUMPDISK are already benefiting from these and other useful and original programs offered by JUMPDISK. Subscribing for 6 months costs only **£45.00** inc. A saving of £1.00 per copy!

MEGA DEMO PACK VOL.I

Yes. It's now available! A pack of 7 disks 'Brim full' with the latest and greatest demos. The Sound and Visual Effects in this original collection are stunning! (None to our knowledge exist in any PD Libraries). The MEGA DEMO PACK will sell an Amiga to even the most ardent ST fan! All for only **£19.99** inc.

PUBLIC DOMAIN — LATEST NEWS

The 'WORKSHOP' SERIES of specialised disks now includes Adventure, Sound, Font, Printer, Icon and Beginners Workshop. Prices at only **£4.99** each.

We have just received the complete TBAG LIBRARY from the Tampa Bay Amiga Group. As there are too many disks to detail here please send **£3.00** for the latest issue of the JUMPDISK DIRECTORY DISK. If you have already purchased this from us we will update if F.O.C. The TBAG Library now features with FISH, AMICUS and FAUG. In the USA TBAG PD Disks are considered to be among the best available.

The PD STARTER PACK consisting of the JUMPDISK DIRECTORY DISK, the BEST OF AMICUS (4 disks) and GOLDFISH (3 disks) is still available at only **£19.99** inc. There is no better way to find out about Amiga PD.

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A multi-feature video show package is put under the spotlight by Peter Lee. Does it pass the audition?

Although the Amiga is beginning to dominate many sections of the computer market, perhaps the biggest current success is in the field of video presentation. The big names are pinning their colours to this particular mast and the latest software house to introduce a desktop presentation package is Aegis, one of the American companies who have supported the Amiga from the start.

Aegis' Lights! Camera! Action! (LCA from now on) is competing for your cash against opposition such as Electronic Arts' Deluxe Productions and Zuma's TV*Show (both of which have been Tested Driven in AUI this year).

The Amiga's speed, resolution and graphics handling make it a natural for this kind of application and the main criteria for any package is that the results should be good enough for professional users as well as satisfying the home enthusiast's needs. Happily, LCA scores on all points. Not only does it do most things a video production utility should, it has one very special bonus which I will save until later.

The package consists of two unprotected disks – the program on one, with examples and data on the other and a 58-page booklet manual which I feel should have been more informative. LCA requires a minimum 1 meg of memory but will take advantage of more if present and really needs two drives. It works in either NTSC or PAL and has overscan for full-frame video images.

"All of the Amiga's resolution modes are supported – including HAM, low and medium res, interlace and extra halfbrite."

In essence, the program is a sophisticated tool which combines the display and presentation of IFF images, ANIM format animation files (if you have created any with VideoScape 3D or The Director) and music files or sound effects created in Sonix-style SMUS score format. The ability to bring together these three facets is a major attraction and, as well as making LCA extremely versatile, considerably simplifies the creation of a one-shot finished product. Having a real-time sound-track also means that as well as making the transfer of a presentation to videotape relatively simple, the option exists for a polished audio-visual pre-

sensation to be run on the computer itself, perhaps to customers or colleagues.

All of the Amiga's resolution modes are supported – including HAM, low and medium res, interlace and extra halfbrite. When sequencing your graphics – in effect composing the script – you have over 40 transitions to choose from, determining how images will appear on the screen. These special FX include flips, fades and wipes, with block effects possible in a number of variations. There are some novelties here – collapse is the sort of effect used on the Thames TV logo as the picture scrolls from the centre to both

the top and bottom of the screen; you can scroll a screen through a windown on screen (especially effective for text) and there is even a Multiple View Port facility to allow screens of differing palettes to be displayed at the same time whilst a transition takes place.

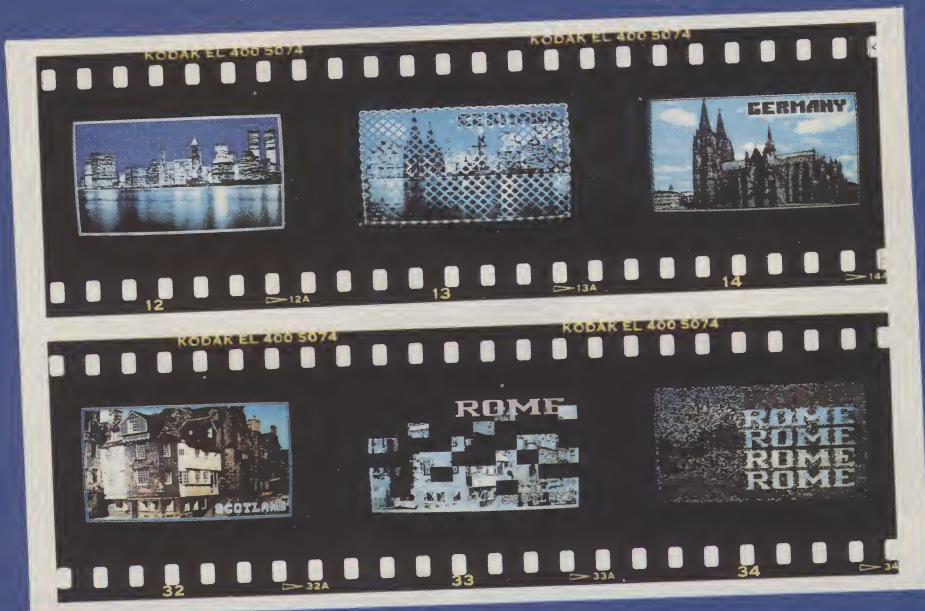
As all commands are entered using the mouse the script composition is probably the toughest part of the program but through multiple choice requestors and numeric input it soon becomes possible to create highly complex presentations. Constructing a script has a three-layered

structure; the initial screen presents details of the particular event and selection of the Edit function takes the user to a detailed menu where specific instructions have to be input. Here you specify details such as the dwell time of an image on screen, how it interacts with the previous screen and so on. The design menu also specifies if a song or sound effect is to be loaded at this point and also adds to its flexibility by letting you alter pitch, volume of a sound effect and even the start and end point of a song. This last option is complex to work out, as you have to work in values of 32nd notes (for instance in 4/4 time there are 32 x 32nd notes per measure; so measure two would be 33 x 32nds into the piece). The third layer of

LIGHTS! CAM!

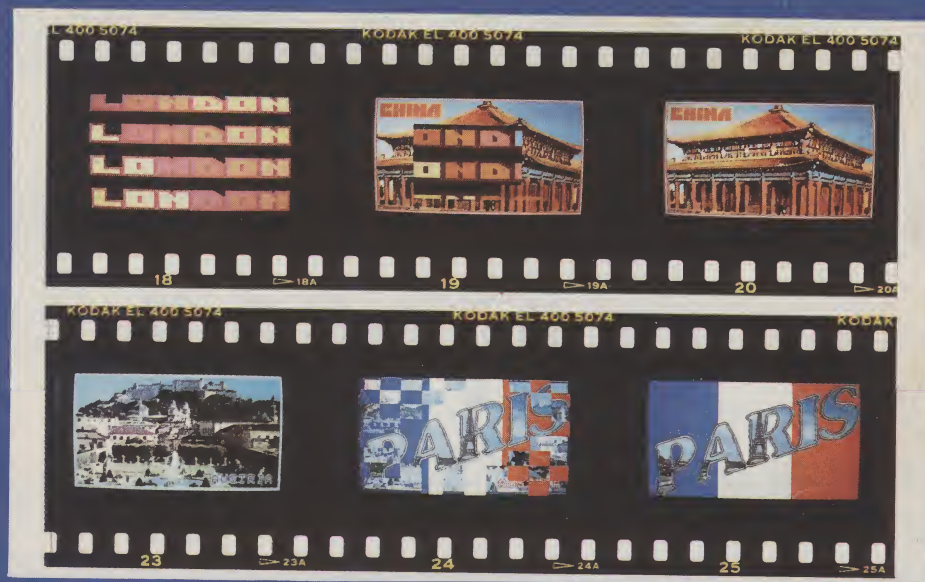
this script control is the file requester and as pathnames are remembered, you can easily combine the work of two disks, plus anything in a RAM disk, to create a lengthy presentation.

Provided you manage your memory efficiently you can take advantage of a powerful buffer load option which will keep your data in memory, making its



appearance many times faster than if loaded from disk. These buffers have the added advantage of compressing data on loading and then unpacking when needed but if quick transitions are required it is better to by-pass this compression as there is a slight time delay while uncompressing takes place. Keeping track of the buffers in use can be confusing at times; the video script requester only shows four frame events at any one time and while it is easy to scroll through your entire list, it is hard not to lose track of what is going on in which buffer. A small advantage and one easily overcome through trial and error and playback, which can be made to loop, or single-step in a slide-show simulation controlled by the mouse buttons.

As I mentioned, as well as being able to load in standard screens, sounds and



ERA! ACTION!

scores, LCA also allows ANIM format files to be either played from disk, or from a buffer; in fact buffers are the best place for these files, which are usually quite long and would require lengthy disk

"animations can be freely mixed with songs (which play along merrily as the Amiga multi-tasks) and standard IFF images."

access. The animations can be freely mixed with songs (which play along merrily as the Amiga multi-tasks) and standard IFF images. The program's data disk contains some useful instruments, songs and pictures to help get you started. Incidentally, if you are in the habit of using larger than normal screens (perhaps in Deluxe Productions work), then LCA allows you to specify the top left co-ordinates of the image from which to base its screen display on.

Now to the little gem I referred to earlier – the bonus program on the disk.

Called GrabANIM it is a screen grabber which will save as many screens in the ANIM format as you have disk space for. And here is the nice touch – you can tell the program how you will signal it to save a frame; the options include mouse in port 2, joystick, keyboard and Koala pad.

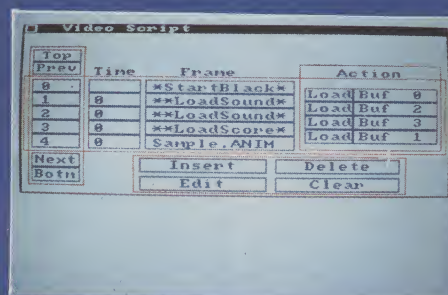
"I was able to save half a dozen different text screens as an ANIM file, then play them back as scrolling credits."

GrabANIM is started from the CLI when you must specify input device and also the path/name of the file to save to. Thereafter it sits in the background until you ask it to save. Using this utility in conjunction with DeluxePaint I was able to save half a dozen different text screens as an ANIM file, then play them back as scrolling credits for a video show as smoothly and effortlessly as any dedicated video text package.

The fact that the program also allows colour cycling during playback gives an easy way to simulate attractive animation on static displays and the demos on the data disk show this feature off to superb effect.

On a specialist note, LCA supports software controls for Digital Creations's SuperGen genlock device, allowing fine-tuning of the computer/video image without the need to amend the hardware's manual sliders.

One final thoughtful feature is the inclusion of a player module which you can freely distribute along with your scripts and art to allow friends to play your work.



CONCLUSION

LCA is a sensibly-priced desktop video presentation utility which deserves to gain a foothold in an increasingly competitive marketplace. The manual is lightweight and superficial but experimentation is well-rewarded. The ability to display the whole range of screen resolutions in overscan, the facility to mix music and sound effects and incorporate already designed animation files make this a hard act to follow. The inclusion of a screen grabber which creates its own ANIM files is a very welcome addition to a strong and useful program. Ready when you are Mr. DeMille...

P.L.

Price: £49.95

Contact: Digipro Ltd, Enterprise House, Howards Grove, Southampton SO1 5RP. Tel: (0703) 703030.

FANCY 3D FONTS

A picture may be worth a thousand words but if your Sculpt 3D picture needs even more, then the going could get tough. John Walker investigates a possible solution.

One of the few drawbacks of Eric "Juggler" Graham's great ray-tracing program Sculpt 3D is that it is not easy to add words to your pictures.

If you want to include letters you first have to draw them individually and then extrude the letters to add depth so they have a convincing three dimensional look.

This process is not only very slow; the results are often indifferent. It is hard enough to draw good-looking characters at the best of times. Within a program that uses the triangle as a basic drawing shape, it requires enormous skill.

Sculpt 3D's extrude device, too, is tricky to use since you have to rely on your hand and eye to get it right. As a result words tend to be conspicuous by their absence from ray-traced pictures and animations.

Fortunately, Access Technologies has now come to our rescue with Fancy 3D Fonts, two disks that contain three high quality fonts for use with Sculpt 3D and its companion program Animate 3D. With them you can achieve far better results than anything you could manage on your own.

Fancy 3D Fonts' instant lettering can save you hours of work and it requires very little effort to achieve a professional gloss to your work.

The fonts come on two unprotected disks without a manual. The only information is a file on each disk giving its directory structure. Access presumably assume that anyone who can wrestle with the fascinating complexities of Sculpt 3D and Animate 3D will need no instructions.

The fonts are in Sculpt 3D's scene format and each letter has to be loaded separately. Once the letters have been loaded you can manipulate them as you can anything else using Sculpt 3D's

tools. You can duplicate them, alter their position in relation to one other or extrude them to give even greater depth.

The alphabet in capital and lowercase letters, numbers from 0-9 and a few symbols such as the pound and dollar sign, question and exclamation mark as and anampersand are provided for each font, with the exception of Bold, which lacks numbers.

'Once the letters have been loaded you can manipulate them as you can anything else using Sculpt 3D's tools'

Letters with accents, such as the umlaut on an 'on', and grave and acute accents on the lowercase 'a' and 'e', are included so that you can create words in foreign languages.

No commas, full stops, quotation marks or similar grammatical marks are supplied but they are not really needed.

The fonts provided – Fanc, Bold and Ital – are contrasting enough to provide users with plenty of variation in style. They are based on type designs which are in everyday use. It is an approach that gives the lettering a professional appearance.

Fanc resembles Clarendon, which is a Victorian typeface with square serifs. It is at its most effective when used big and bold. Its style – new and exciting in the late 1840s – does look old-fashioned now.

The lowercase letters, which show considerable contrast in their thickness of line, can seem a little fussy in their three dimensional form.

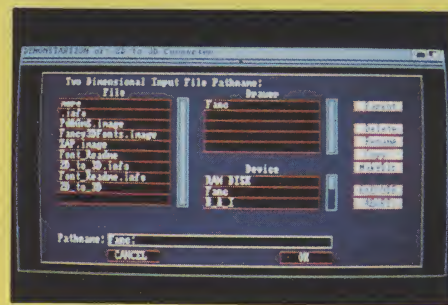
Bold is a 3D version of Helvetica, the sans serif face that has grown steadily in



popularity since it was created by Max Miedinger in 1957 until it is now one of the most popular of all fonts.

Helvetica has a far more modern feel about it than Clarendon, although it is based on a 90 year-old design. With its strong simple lines it looks very effective in 3D.

The third font is Ital, which resembles Bookman Italic, a serif font which has large open lowercase letters that lend themselves well to three dimensional effects.



All three sets have been well designed to eliminate jagged edges or stepped curves as much as possible. The letters do, of course, take up a certain amount of memory when used.

But if you are already using Sculpt Animate 3D you will already have at least 1 megabyte of memory. With that you should be able to include four or five words in your creations, which is as much as you are likely to need.

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AREXX

(The integrative language)

A language adopted by IBM comes to the Amiga – and has started to change many other applications. Howard Oakley finds out why and looks at a command shell with an ARexx interface.

ARexx is the Amiga implementation of the language REXX, devised in the early 1980s by Mike Cowlishaw of the IBM Research Centre at Winchester, England. REXX could easily have disappeared into obscurity but, because it has proved to be a very powerful tool for processing script or batch files (like the startup-sequence file in the S directory on all Workbench disks). IBM have adopted it for mainframes and their new OS/2 operating system.

ARexx is a faithful port of the language to the Amiga, carried out by William S Hawes, the author of the popular public domain utility ConMan. It is a small program, largely implemented in a 32k library, with some very unusual features. It is interpreted and reads not unlike BASIC, although it is generally much simpler. It has particularly powerful facilities for processing text strings and dealing with other programs.

ARexx is supplied on a single unprotected disk, with a printed, spiral-bound A5 manual which in 155 pages manages to be an excellent introduction to the language as well as a clear reference for this implementation. The disk has a simple script file which enables you to install the vital files on other floppies or a hard disk, a feature which many more expensive packages omit. ARexx runs on any Amiga with version 1.2 or later of Kickstart and Workbench.

Version 1.06 comes with many examples and a manual update on the disk, header and include files to help programmers in assembler, C and Modula 2 write programs to use ARexx and five additional support libraries. These provide maths functions (total 32, which can also use a maths co-processor if installed) and some fancy ones to go with ARP, the PD AmigaDOS replacement which is also supplied on the disk. The ARP library is particularly good, in that it even offers the MicroSmiths file requestor as a simple

function call, enabling much more professional programming without tears.

This implementation is very good and true to the original language. A total of 32 instruction are provided (elements like WHEN), 88 functions (such as DATE(), which returns the date in a variety of formats), 55 function calls in the standard support library and additional ones in the other libraries. Because ARexx itself is concentrated into a library, it is very efficient in its use of memory – only one copy of most of the code has to be resident, no matter how many programs are using it. Bill Hawes has encouraged extension functions to be as careful, by ensuring that they too are placed in libraries, which, although they are more difficult to write, are a lot better in use.

One example of how ARexx can make life easier for you is in writing a new version of the AmigaDOS command, Join. The original has a major problem with it, in that you cannot join a series of files into one with the same name as one of the components. Thus:

```
join mainfile file1 file2 AS mainfile
cannot be used, instead:
```

```
join mainfile file1 file2 AS tempfile
copy tempfile TO mainfile
```

will do the trick. This sequence is carried out by the following ARexx program, which can be called JOIN.REXX and run in place of the AmigaDOS command Join:

```
/* join – a front end to fix the problem
with AmigaDOS join */
parse arg x /* takes in the argument
list supplied */
temp = 'arexxtmpfile' /* the
temporary file name */
do i=1 to (words(x)-1) /* a FOR ...
NEXT ... loop to work */
/* through the argument list */
if words(x,i) = word(x,words(x)) then
do
/* word(x,i) returns the ith word in
the*/
```

```
/* argument list; words(x) returns the
*/
/* number of words in the parameter
list*/
/* Thus, if the destination file name */
/* is the same as any component for
the */
/* join, */
oops = word(x,words(x))
/* first make OOPS that file name */
x = delword(x,words(x)) 11 temp
/* then replace the offending file
name */
/* with the temporary one, as the */
/* destination */
'c:join' x /* carry out the join using
AmigaDOS */
'copy' temp 'oops'
/* copy the temporary destination file
*/
/* to the real destination file name */
'delete' temp /* then delete the
temporary file */
exit /* and exit this ARexx program
*/
end /* end of IF ... THEN DO ... */
end /* end of DO ... TO ... */
'c:join' x /* carry out an ordinary join,
as no */
/* name is duplicated */
```

The other implementation of REXX which you are likely to come across is that of the PC, which is over double the price. ARexx is quite compatible with this but Personal REXX for the PC is not as true to the mainframe versions, so you do have to be a bit careful when porting programs between machines. On the other hand, it is now very easy to write programs for mainframes on the Amiga – and good REXX programmers are sought after, so it may help you in the jobs market too!

I have been very impressed by ARexx, in all respects from documentation to the implementation itself. However, you do have to be fairly happy working with the CLI – if you have always stuck to using

Workbench, you might find it hard going. Neither can it replace BASIC, C or assembler as the Amiga's major programming languages: you can write many programs in REXX but it is best for manipulating other programs. It has, for example, no graphics abilities in itself but can deal with the graphics produced by another program. In order to do this, ARexx provides a set of 'hooks' which

allow other programs to communicate with it and vice versa. It is thus ideal for producing customised integrated suites of programs, much in the way that macros or command languages do in other programs like DBase II and text editors.

So, if you have used the CLI, you should get ARexx, especially if you are interested in producing really profession-

al integrations of a number of separate applications and clever script files without tears.

H.O.

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WSHELL

There are many command shell interpreters around which aim to make the CLI easier and more powerful in use. Most of these are in the public domain, such as C shells but only one has 'hooks' yet for the ARexx language – William S Hawes's WShell.

If you are going to be programming in ARexx, you really do need some form of command shell and it needs to have the hooks there so that you can make best use of it. WShell is a relatively simple shell with just those hooks, which also works well with Hawes's PD console enhancer, ConMan and the PD AmigaDOS Replacement Programs (ARP).

WShell comes on a single unprotected disk, with a spiral-bound A5 manual which describes the inner workings of the shell, how to interface it to programs which use ARexx and so on, in a total of 61 pages. The disk contains WShell and its library (yes, another library to add to your LIBS directory – but it saves on memory as only one copy ever has to be loaded no matter how many shells you are running) and ARP and ConMan (version 1.1) files and some ARexx examples and filters. For programmers, there are also some assembler source files as examples and as with ARexx itself, there is a simple script file to make installation easy. All you need to run WShell is any Amiga with at least version 1.2 of Kickstart and Workbench.

To use WShell with ARexx, you should modify your startup-sequence (in the S directory of your boot disk) to load ARexx, use the ARP library and load ConMan. Then, you can install such resident and aliased commands as you wish (examples are given of startup scripts to do this) and ensure that the pipe device PIP: is mounted to enable piping. The command NEWWSH then provides you with your new command shell, using your desired prompt and all the editing features of ConMan. WShell keeps a substantial history of the commands which have been entered, so that you can step back through them using

the up cursor key and edit and re-enter them as desired. Between WShell, ConMan and ARP you should find that all your old pet hates of the standard AmigaDOS CLI are gone – for example, ARP allows you to use wild cards in printing files:

type > prt: #?.txt

and a form feed is placed at the end of each file so printed, with the file name printed as a header to the first page of each file. I think that ARP addresses the problems of consistency and function for each command very well. ConMan makes the CLI itself easier to use with its editing and console handling features and WShell then brings new facilities, particularly the ARexx interface.

The more unusual features of WShell include the ability to use aliases for command names, for example the command:

alias del = delegate

allows you to delete files with the command <del filename>, as in MS-DOS. Of course, you can try to achieve the same effect by renaming the Amiga command from <Delete> to but that is permanent and prevents you from using <delete filename> – whereas WShell allows you to have many aliases for a single command. You can also make many commands resident, so that you do not have to wait for the relevant program to be loaded from disk; this is actually more efficient than just placing them in a RAM disk, as they then swallow up twice their size in memory – once in the RAM disk and once when they are called and running. There is a snag, though: the only programs which can be made resident in this way are those which do not modify their code and that excludes a few AmigaDOS commands (but none of their ARP equivalents) and almost all programs written in C.

There are several other useful features. The prompt offered by the WShell CLI can be customised extensively, allowing you to include all sorts of information and even run a program at

every prompt, as can the window title itself. Directory handling has been considerably improved over the standard CLI, although this does mean that an ARexx program with the same name as one in the C directory will be run in preference to the latter, as ARexx programs are earlier in the search order. You can manipulate a directory stack with commands such as POPCD, SWAPCD and so on.

Unlike several of the PD shells, WShell does offer truly concurrent piping. This means that you can send the output of one program as the input to another and the two programs will be loaded and running at the same time. A simple example of this would be redirecting error messages output by a compiler into a file opened within a text editor, which could also then load the source file which you are currently trying to compile.

This might be achieved by something like:

cc progfile.c : ed progfile.err

where the : symbol indicates the pipe. You can go further than this, using the ARexx interface and an editor with ARexx hooks and produce an ARexx program which takes the error list from your compiler, inserts the error messages as comments at the correct places in the source file and then steps you through them in an editor such as CygnusEd Professional to make amendments as required. This sort of integrated programming environment was offered by TDI Modula-2 and in expensive commercial programming systems.

The ARexx interface has many other uses. If your text editor does not enable you to do a word count, you can enter the single-line program and command:

"wc=0; do until eof (stdin);wc=wc + words (readln (stdin)); end; say wc"
<infile

where infile is the name of the file whose words are to be counted. Of course, if you intend using this a lot, you should turn it into a separate ARexx program, **/★word counting program★/**

cont. on next page

continued from page 15

```
parse arg afile /★ get the command
line argument ★/
wc=0 /★ initialise variables ★/
11=0
if open ('datafile', afile, 'read') then
/★ open the file as read only ★/
do until eof ('datafile')
/★ Now, do until it reaches the ★/
/★ of that file ★/
wc = wc + words (readln ('datafile'))
/★ read a line in and add the ★/
/★ number of words in it to WC ★/
11 = 11 + 1q/★ and add one to the
number of ★/
/★ lines ★/
end /★ end of IF... THEN DO... ★/
say 'Word count of' afile 'is' wc
/★ write results to the screen ★/
say 'in' 11 'lines'
say 'giving a mean of' wc/11 'words
per line'
/★ and calculate words per line ★/
which could then be called as:
wordcount infile
```

WShell is a well-written and apparently bug-free command shell which is ideal for anyone using ARexx. It is considerably easier to use and more powerful than either the standard AmigaDOS CLI or the replacements which I have seen (including Sili-Con, which I used to use). However, much of this functional enhancement is really a result of the two PD products with which it is provided – ConMan and ARP. It might therefore have been better if it had been supplied as an integral part of the ARexx package.

Very few people will want to use ARexx without WShell and although WShell does not need ARexx, it probably does not have enough advantages to make it a worthwhile product for those without ARexx (given the number of PD command shells available).

I am delighted with the combination of ARexx and WShell and have deleted all the other command shells which I used to use and will now standardise all my work

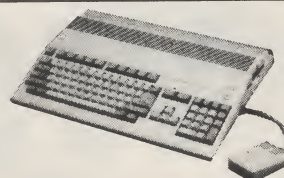
to William Hawes's products. I think that many other Amiga users will do the same.

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Drawing on the efforts of others to help you out of a tight spot with a well-turned illustration is a great time-save. Even if the particular item as supplied is not quite right, it may simply need a little editing to get your desired artwork. This disk from SunRize Industries is cheap and cheerful enough; hardly a necessity for Amiga artists but a welcome addition to anyone's desktop publishing or art utilities library. It contains over 200 illustrations, all saved in the familiar 'brush' format as used by most graphic programs in medium resolution (640×200) and all in black and white. Shading of the more complex drawings is achieved through dot-pattern

grey scales. Each item is grouped into a particular director and these include Business, Faces, Critters, Office, Symbols and Sports, with the biggest category being Odds'n'ends.

Some of the artwork is really first rate – in particular the larger ones, such as a waterwheel and castle in the Gallery directory. Others are trivial and some are a little too American to be of much use to UK users. However, the majority are simple but effective. Even if they do not quite measure up to your requirements, they can be edited in any way you like once loaded into an art package.

The disk is unprotected and is accompanied by a glossy broadsheet showing



all the clip-art available, which saves you having to hunt through the disk – which I was surprised to find was not full; plenty of room on there for more work I would have thought.

Conclusion – Handy to have around but a non-essential utility. I would advise you to see exactly what is offered on the disk before buying to make sure it contains the kind of illustrations you may need.

P.L.

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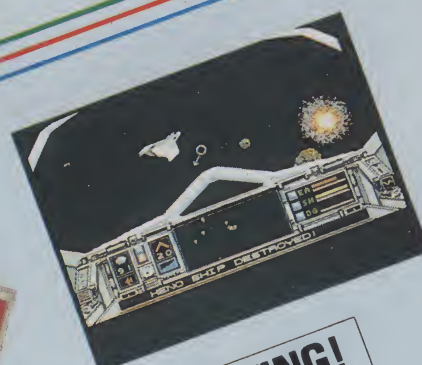
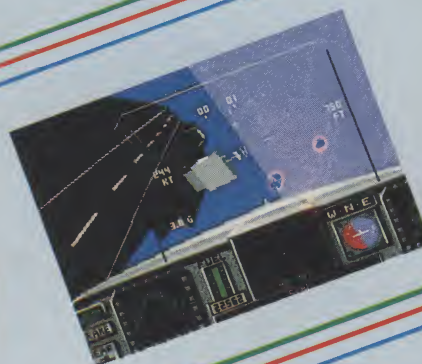
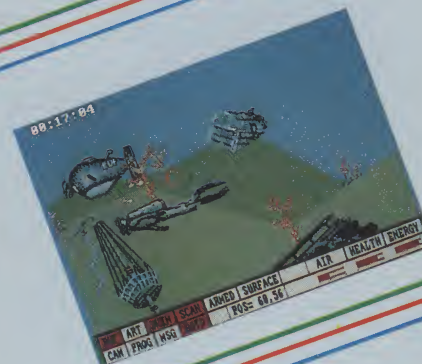
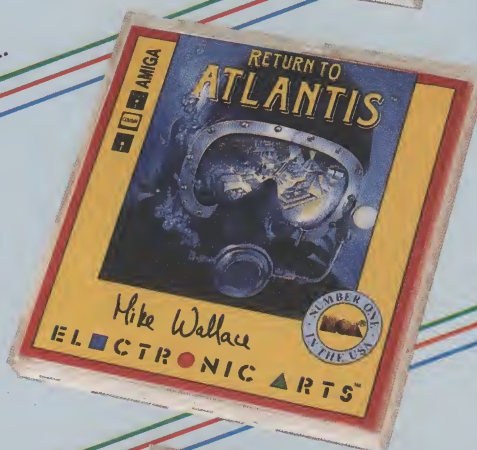
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Right, now you have recovered from being amazed by the screenshots, let me tell you about the game. Soren Gronbench, Bakager Carsen, Julian Lefay and Rick Ross are the names behind it all, and as you may have guessed by their names (and the quality of the game), Sodan was not written in England but the U.S. by Danish programmers. Glance over these pages. Well, you don't need to glance, the graphics of Discovery's *Sword of Sodan* smack you in the eye — or in Amiga parlance, knock your socks

systematically crank up from the bottom of the screen, fortunately quite predictable and not too hard to dodge. Brilliant sampled creaks and groans add to the atmosphere. Another soldier guards the opposite end of the bridge.

"Brilliant sampled creaks and groans add to the atmosphere."

Next it's into the city itself. Some pest starts rolling barrels at you, distracting you from the real business of dealing with the locals. Survive that lot and a massive, really massive — the biggest you've ever seen on a

off. Games with speedy giant-sized sprites have been promised to Amiga users for ages, but nothing of the sort has appeared, until now that is.

In case you thought these screenshots were deceiving you, take it from me, those characters are enormous! *Street Fighter's* are big (about 3 inches tall on the average monitor) but *Sodan's* are not only bigger (up to five inches tall), they have the speed to match. Before you get a look at these, a superb title picture glides onto the screen, followed by an instruction to the foes and features to be found in the game.

A wrinkly old pair of hands present you with a map of your surroundings, your position indicated by a small arrow. You start at the gates of the old city. As you approach, the townfolk come at you, poking and stabbing viciously with their spears. Your attacks need to be quick and precise to avoid their flesh-piercing points. Each of the guards take a number of hits before falling by the wayside, and a helpful strength meter accompanies them all; so at least you know how far you have to go. Just like an arcade machine, *Sodan* uses this first level to teach you the basics of the gameplay. A short paragraph fills you in on the story, whilst a sampled "More hits required for each enemy" accompanies your first successful blow.

Once through the gates you find yourself on the wrong side of a booby-trapped bridge. Sets of spikes

home screen — armoured warrior piles into you with a club. His size is not quite matched by his ferocity (luckily) and with a bit of persistence you'll have his head off in no time. But watch out he's so powerful the





OF SODOR

Discovery Software

slightest thump from his club puts you down and out.

"With each level more and more hazards are thrown at you, flames streak along the ground, walls slam down from the heavens and loads of surprise traps crop up all over the place."

Now you take a stroll through the forest, the least impressive of all the scenes. Thugs with multi-coloured hair and clubs look very out of place, though the big stumpy reptiles are more along the right tracks.

The spookiest of all the levels has to be the one set in a graveyard. Zombies climb up through the turf, zapping you with magic beams.



continued from page 19

SWORD OF SODAN

Three overlapping layers of parallax scrolling give the whole scene real depth. All the time, lightning flashes in the sky, werewolves howl and our hero grunts with every injury. Later on you are skewered on yet more spikes (have we discovered one of the programmers' kinky fetishes here?), frazzled by bubbling lava and generally given a hard time. I would love to tell you about all the surprises further into the game, but you can find them out for yourselves.

Throughout the adventure you have three attacking moves and although you carry a shield it never comes into use. Occasionally an enemy will leave behind a magical pot. Collecting these sparks off a dramatic sound effect and gives you an extra life, temporary invulnerability or increased strength. Each of the levels varies enormously, not only in graphics but in the enemies and traps that await you. Outside the city gates, passing the guards is a simple matter of ducking their thrusts and getting in quick little jabs with your sword. However, with each level more and more hazards are thrown at you, flames streak along the ground, walls slam down from the heavens and loads of surprise traps crop up all over the place.

With all that attention paid to the graphics, you might assume the sound would take a back seat. You could hardly be more wrong! Superb music plays along with the visual effects between games. Some levels have a piece of backing music and all have some of the best sound effects ever heard in a computer game, they would be exceptional even by coin-op standards.

Detail is another of Sodan's high points. In many games scrolling backgrounds are often a repetitive patchwork of small features. Those of Sodan are decorated with items such as the statue on the third level, decomposing bodies in the castle and fine details like the animated ants on the anthill found in the forest.



One final variation is the choice of play either the macho warrior or a very capable female.

The current going rate for Amiga games is not something I am very satisfied with at the moment, but *Sword of Sodan* is one game that I will not call over-priced. For twenty five pounds you get eleven levels of highly atmospheric fighting fantasy that must be the closest thing to a state of the art coin-op on the Amiga. Just how long it keeps you glued to your joystick depends on your sword swinging skills, but however hard or easy you find it to master, *Sword of Sodan* will not be relegated to the

back of the diskbox for a long time to come (if ever!). If you buy one Amiga action game this year, this has got to be it. **T.H.**

Graphics: 9
Sound: 9
Playability: 9
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PICTURES FROM THIN AIR

In our hi-tech world, computers are playing an ever increasing role in non-computer hobbies. Stuart Williams has discovered one hobby (radio FAX) where only the Amiga's speed and graphics makes it possible.

We all take the satellite maps shown on TV for granted these days and who bothers to comment on the pictures that appear instantly in our newspapers that were taken only hours before on the other side of the world. Acceptances of high-technology as an everyday attribute of the 'global electronic village' is commonplace these days, especially amongst those of us who are computer literate. However, have you ever thought what it might be like to have such facilities in your own home? Impossible, you say. Incredibly expensive, you gasp. No. It is here, now, affordable and on your Amiga!

The system used to send and receive such pictures is one which is also used to great advantage by big business and the publishing industry, in a modified form, via the telephone. It is called 'facsimile', or FAX for short. In this article, I intend to preview a means by which anyone can receive pictures from thin air, radio FAX and by use of amateur radio, send such pictures around the world.

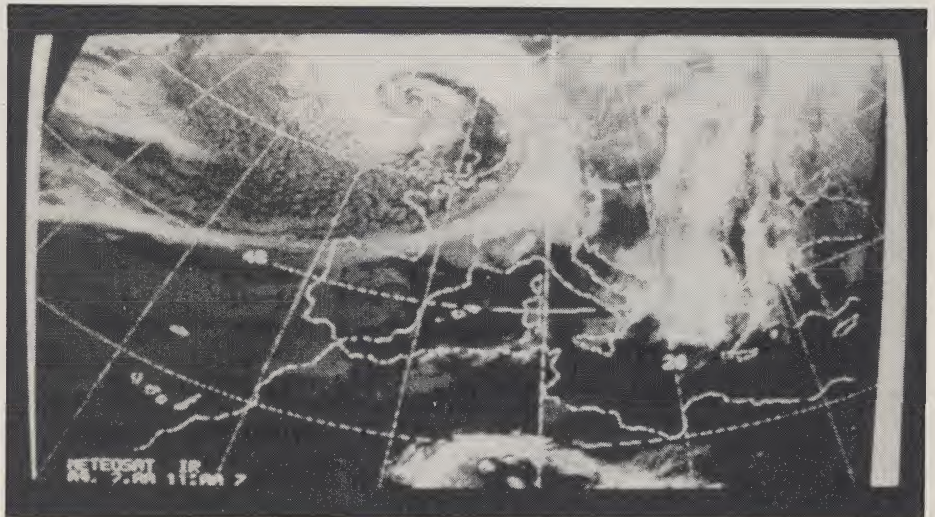
Volker Wertich, who may be known to some of you as the West German author of ANCO games 'Emerald Mine', has a brother who is a Radio 'Ham'. He asked Volker to write a program to let him run a Radio FAX system from his Amiga. From a simple beginning, he created the AMIGA-FAX system, a sophisticated yet reasonably priced solution, which he now markets in the UK via

sole importers ICS Electronics Ltd. I met Volker Wertich at the National Exhibition Centre in Birmingham, where he was demonstrating AMIGA-FAX on the ICS stand at the Radio Society of Great Britain annual convention. My eyes popped out when I saw the incredible results produced via the Amiga and I took the opportunity to acquire a disk of sample FAX screens which are reproduced within this article. I think you will agree that the results are remarkable – but wait till you see them displayed on an Amiga in hi-res interlace 640×512 resolution mode!

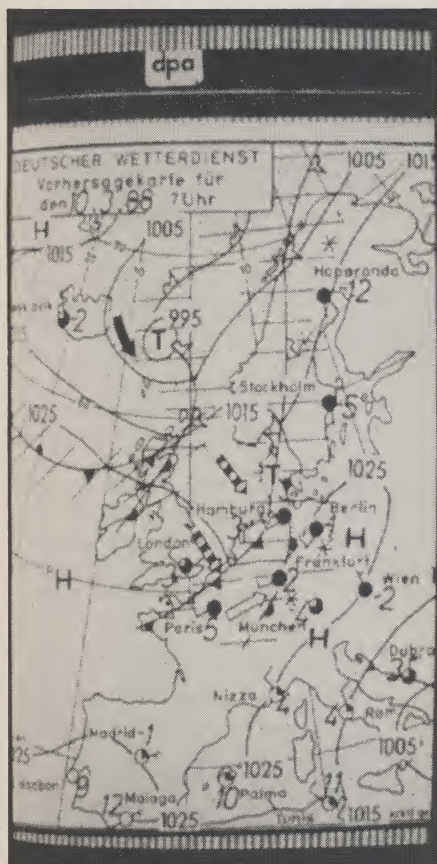
What do you need to use AMIGA-FAX, what are its features and what can you get out of it? Well, if you only want to receive FAX transmissions, then all you need is your Amiga, the AMIGA-FAX software and interface and a good quality shortwave receiver. The Amiga you already have (and if not, why not?!) and the receiver can be picked up second-hand from £50 upwards, though it is possible to pay from £150-£1,500 if you buy new, depending on the depth of your pocket and how fussy you are! If you have a friend who is into shortwave listening or amateur radio, then take his advice.

“My eyes popped out when I saw the incredible results produced via the Amiga”

Likely sources of good receivers are your local Amateur Radio dealer, who is also a good source of advice, or a Radio Rally (a ham friend or Amateur Radio Club will be able to advise of dates and locations of these gatherings). Alternatively, pop along to Dixons, Tandy's, or Curries and have a look



at the portable communications receivers they sell under various names – they are all priced around £150–£175 and use a digital frequency display and push-button frequency control. Do not touch the cheap transistor radios with analogue (moving needle or dial) tuning, as they are not up to the job. You may also find an external aerial useful, kits for a long-wire system are available from your local Tandy store fairly cheaply. The AMIGA-FAX package will cost you £99.95 including VAT, plus £2.50 postage and packing.



If you want to transmit the AMIGA-FAX, then you will have to become a 'Radio Ham'. Details of how to do this are available from the RSGB (see addresses at the end of this article) and be prepared to spend on transceiver and aerial equipment. If you are already an Amateur, then you will have all the radio equipment required to link up your Amiga for transmission and reception of Amateur FAX and the Amiga will become your source of pictures! If you are thinking of transmitting FAX via a Citizens Band Radio set-up, forget it, as not only is data transmission illegal on CB but there is no one on there using FAX anyway!

What does AMIGA-FAX consist of? Well, reception is handled via an Analogue-to-digital converter interface which plugs into your parallel port (you should specify which Amiga you use, as the gender of the ports was changed when the A500 and A/B2000 were introduced). The audio data from your receiver (linked via the extension speaker socket on the radio) is fed into this converter

and is translated to a form suitable for the software to convert into the display you see on-screen. Your own FAX screens are transmitted as suitable tones via the audio outputs at the rear of your Amiga, which are linked into the microphone socket of your transceiver.

simplify reception. Precise receiver tuning is not essential to produce good results and the program includes facilities to prevent picture distortion. The package includes a detailed manual, hardware interface module, program disk and IFF conversion program disk.



The software features use of the 640x512 interlaced PAL screen on European/UK Amigas, using a 640x400 screen with 16 grey levels for the actual received image and the remaining screen space is taken up by a tightly-packed menu at the bottom of the screen, which is mouse-controlled. The program has a large screen memory, equivalent to 3.5 screens on a standard 512k machine. All common send/receive facsimile speeds are catered for and screens are saved to a specially formatted disk, capable of 1 megabyte of screen storage. Received pictures are transferable to IFF format, for inclusion in graphics or desktop-publishing programs and IFF files can be sent which have originated from such programs as Deluxe Paint, or digitised using Digiview. This means that Radio Amateurs can create any screen they wish using the impeccable graphics facilities of the Amiga, for transmission to other Amateurs! Images can be manipulated before and after reception, in the form of mirror-imaging (left-to-right and up/down), inversion (black/white) and adjustment to contrast and brightness is also possible. This enables optimum results to be obtained when

Printer support is included for 9-pin Epson-compatible and 24-pin NEC-compatible dot matrix printers, which includes the possibility of printing full-width weather maps in multiple strips, enabling printouts of up to 3,840 dots per line. With 512k RAM expansion, it is possible to capture maps containing 4 million dots! This kind of high-res map can also be displayed in strips on-screen.

The software is compatible with all Amigas and all versions of Kickstart and includes many switchable automatic functions to

What can you receive using AMIGA-FAX? Well, as you will have gathered, satellite weather-maps are available. If this does not appeal to you, how about views of the Earth from space? Or maybe tapping in to the picture transmissions of the international News Services would appeal more? With the photographic quality of the images produced, you could even drop them into your own newsletter using DTP software (though copyright might well be a problem here!). Needless to say, this kind of system gives you the opportunity to see the news as it happens and before it arrives on your TV or newspaper. If you are a Radio 'Ham', then the possibilities are endless. The power of the Amiga can be harnessed to your skills in radio to enable you to transmit and receive Amateur facsimile as it has never been done before. After consideration of the remarkably low price of £99.95 for such a high-quality system, I certainly intend to beat a path to ICS's door. Yet again, only the Amiga makes it possible!

S.W.

Amiga-Fax – Price £99.95

**Contact: ICS Electronics Ltd, PO Box 2, Arundel, West Sussex, BN18 0NX.
Telephone: 024 365 655. Facsimile: 024 365 575**

For some information about Amateur Radio contact:

Radio Society of Great Britain, Lambda House, Cranborne Road, Potters Bar, Herts, EN6 3JW.

ULTRADOS

The Amiga's Workbench is a powerful and friendly user interface. There are, however, many commands that can only be accessed via the less friendly CLI. Ron Webster was pleased to discover an alternative – UltraDOS

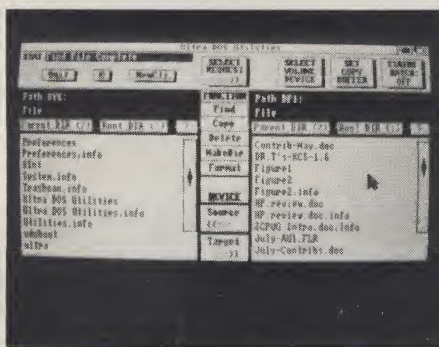
The level of function provided by a sophisticated micro like the Amiga is extremely high. AmigaDOS is powerful enough to support almost all the disk management facilities needed by most people. The Workbench/Intuition interface is a particularly easy method of invoking the most commonly used disk-handling commands. Access to the other wealth of functions is available through the CLI. Unfortunately the CLI is really only suitable for the experienced user. If you want to perform a non-icon driven function and do not relish the thought of using the CLI then UltraDOS may be just what you are looking for. The gadgets and requestors of UltraDOS, from Free Spirit Software, allow 'clickable' access to commands that previously had to be typed in a CLI window. Any Amiga with at least 512k of memory and Workbench/Kickstart 1.2 or above can run UltraDOS although users with additional disks and memory will derive the most benefit.

A twenty-three page A5 manual describes the operation of UltraDOS in a concise and easy to follow manner. Appendix A of the book gives a step by step guide to installing UltraDOS on a hard disk drive. Another two appendices detail the wild-card and date/time search patterns and provide additional information on multitasking and the factors which influence the speed of the copy process. The rest of the book deals with driving the functions supported UltraDOS.

Although the disk containing UltraDOS is a bootable Workbench 1.2 disk in its own right, you can also invoke the utility by double clicking on its disk icon from your own Workbench session and then selecting the utilities icon. Once in, you will see a control panel containing two large windows. Above and between these windows are a number of gadgets. These control the functions of the utility. Each of the two windows contains a file display areas together with boxes containing details of the selected paths and file names. Within each window are also three gadgets, two of which provide instant reversion to either the next highest directory level or the root directory. The third gadget displays a file information screen. A

drag bar allows controlled scrolling of the file list in each window.

The gadgets located outside the two main windows invoke functions such as file copying and deletion, disk formatting and the creation of new directories. There is also a very useful FIND function which searches all the directories and subdirectories on the chosen disk for a given filename. FIND is even more powerful when coupled with the wildcard facility. Two types of wildcard are allowed. An asterisk in the filename acts as a multiple arbitrary character, while a question mark can replace any single character. A name specified as INV* would match to any file beginning with the letters INV and a file specified as ???TD would match any five character name ending in TD. An extension of this pattern matching is of enormous value when using the copy function. Using the time-stamp maintained by AmigaDOS a date/time search can locate all the matched files updated since a given time and select them for backup.



Copying is performed between the disks whose contents are displayed in the two windows. Another gadget controls the direction of copy operations. For those who just can not do without one, a new CLI window is generated by clicking yet another gadget. Clicking SET VOLUME DEVICE displays a window containing the volumes currently available to AmigaDOS. Selecting a volume determines the contents of the current window. The current window is toggled by selecting the SELECT REQUEST gadget from the main panel. The size of the copy

buffer is controlled by a requestor which appears when its gadget is selected. The requestor displays the amount of CHIP and FAST memory available together with the size of the copy buffer and remaining free memory. The buffer size can be increased for better copy performance at the expense of free memory.

The file information available from the INFO panel includes the full pathname, size and filetype. The protection flags and last update date for the file are also shown together with its current status and any comments associated with it. The protection flags and comments may be easily altered from this panel. Options are available to delete the file or edit it using the AmigaDOS ED full-screen editor. If the file contains an IFF image of any resolution it may be displayed even if it contains HAM mode data. HAM pictures are, however, only displayed in thirty-two colour mode. A VOLUME INFO option displays various details about the parent volume on which the file resides.

Both copying and file deletion can be carried out in either of two modes. The standard functions allow the user to operate on files in the foreground and wait for each operation to complete. A batch facility allows the preselection of a group of files so that once selected they may be operated on as a group by one copy or delete function. Although the batch facility is very useful for dealing with long lists of files the standard copy function does still offer a wider range of user options including date/time selection and control over the number of directory levels to drop through. Autoformatting of target disks is a nice touch as it even springs into action when there are not enough blocks free on the target disk and a fresh disk is needed. In both batch and foreground modes verification is sought before taking action which may cause the loss of valid data. This may be disabled if you are confident that all will be well and do not want to keep replying to the prompts.

Even though I am perfectly happy to work in the normal CLI I can see plenty of uses for UltraDOS. Whenever I am copying or formatting large numbers of disks or have lost a file and cannot remember which of my disks it is on I will more than likely reach for UltraDOS. Hard disk users may also find it useful for backing up their data onto floppies. There are still many functions for which I will still need the CLI but within the scope of commands it covers UltraDOS succeeds in creating an easy to use, practical alternative to the CLI.

R.W.

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DATABASE EXHIBITIONS



copy protection, an instruction book and a key guide. The instructions are surprisingly well-written; helpful, easy to follow and even humorous in places. It is explained in these that the Egrons are building huge lasers on the seven moons of the planet Millway. These are to be used to protect the construction of an even more huge space station which the Egrons plan to use against Novenia. In the revolutionary Icarus starfighter it is your job to stop them. Just how to do it is one thing the instructions leave you to find out for yourself.

"The profiles of each planet come in handy here; how else would you know where to start looking for a petrified tree in a whole solar system?"

Apogee is where it all starts. It is the third planet from the sun of the Sollice solar system. Four other planets make up Sollice, orbited by

Interstellar exploration comes right up to date with Rainbird's sequel to the very popular Starglider. A tremendous amount of hard work has obviously gone into its making, the results of which are immediately evident. It has 'class' written all over it. As almost no game before, it reaches out for levels of technical excellence and what is more reaches them.

The first and one of the most impressive points is that the disk has been ingeniously designed so as to allow it to be loaded into either an Amiga or an ST, taking advantage of both machines' capabilities. Not only that, but a game situation saved on an Amiga can be loaded into the ST version, so ST and Amiga owning friends can swap status disks!

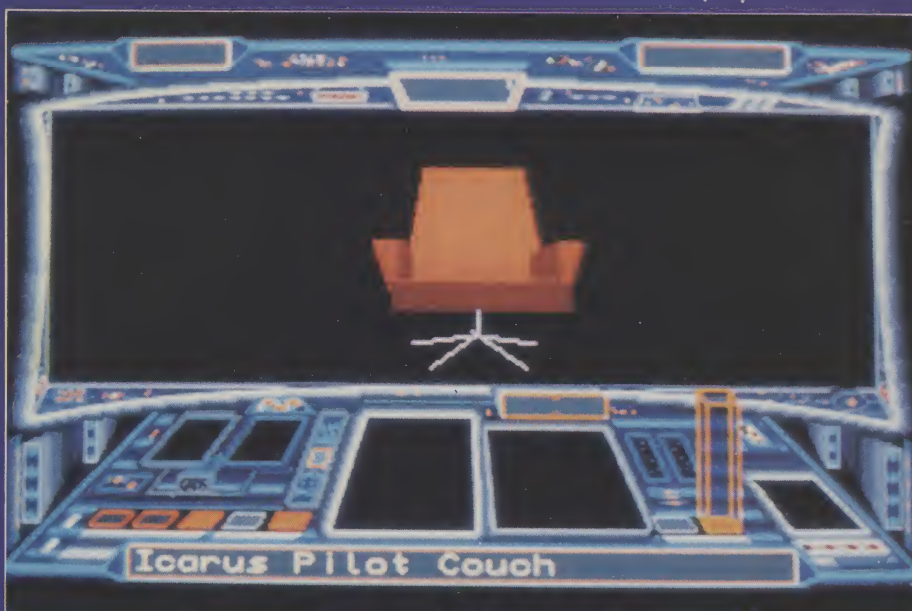
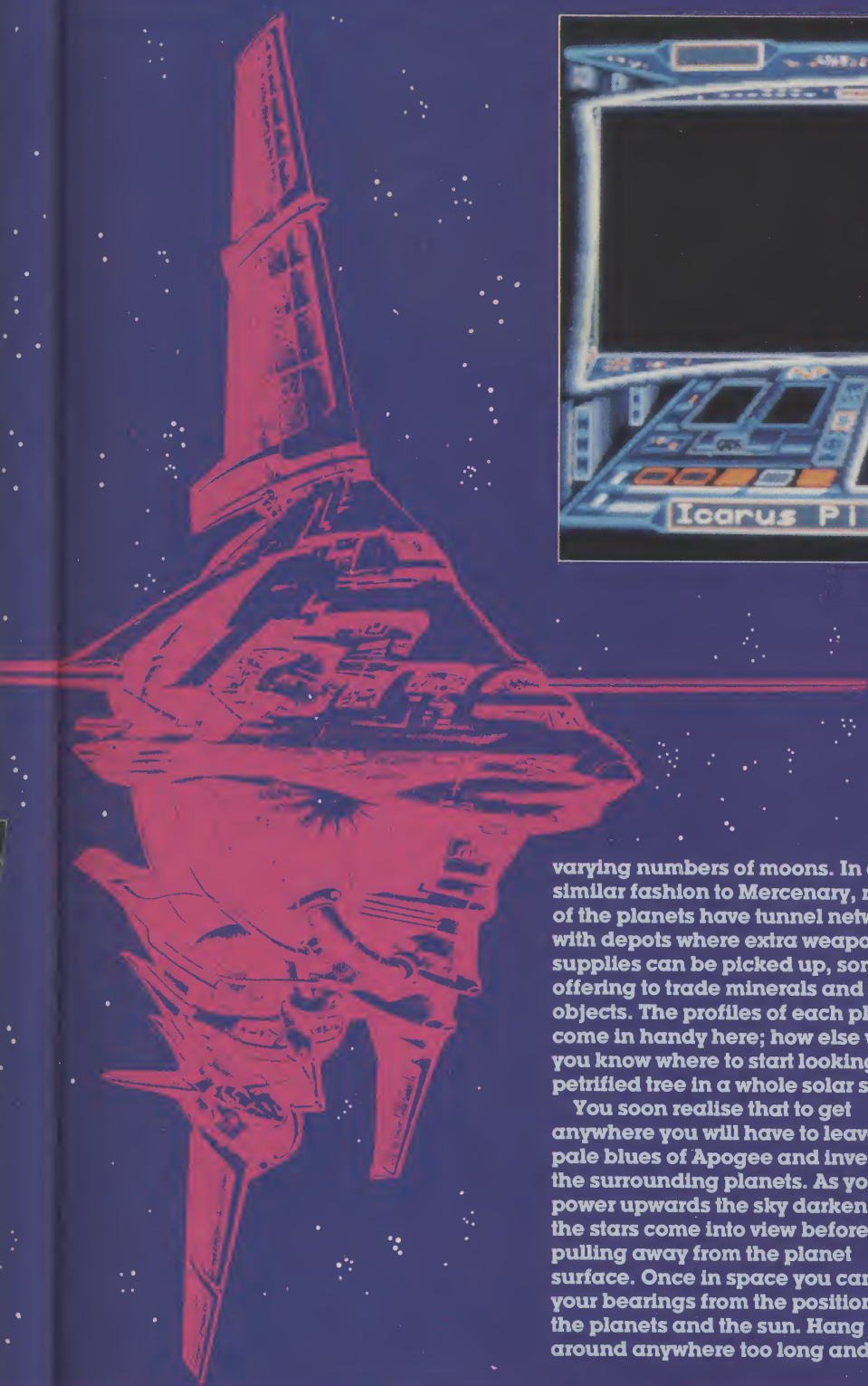
As you enter the game for the first time you could be forgiven for mistaking it for a simple Star Wars type game. Looking over the superbly shaded dashboard you can see a chequered floor sliding beneath you, dotted with occasional towers and guns. Even though the horizon is usually visible, objects only appear when they come within a certain distance. This avoids lots of

unnecessary little items cluttering up the view and going unnoticed as you play.

With the game comes a set of three booklets: a novella that is used for



STARGLIDER



varying numbers of moons. In a similar fashion to *Mercenary*, many of the planets have tunnel networks with depots where extra weapon supplies can be picked up, some offering to trade minerals and other objects. The profiles of each planet come in handy here; how else would you know where to start looking for a petrified tree in a whole solar system?

You soon realise that to get anywhere you will have to leave the pale blues of *Apogee* and investigate the surrounding planets. As you power upwards the sky darkens and the stars come into view before pulling away from the planet surface. Once in space you can get your bearings from the positions of the planets and the sun. Hang around anywhere too long and fleets

of space pirates attack your ship. The 'Head Up' sight projected onto your windscreen can be used to line up the enemy to a certain extent but your laser bolts tend to be rather inaccurate. Some of the enemy carry cargoes which can be collected after their destruction, others are just a pest.

Interplanetary travel is vastly sped-up by the use of the stardrive mode which blurs the stars as they fly past. Each planet has its own characteristics governing its colours and life-forms. You would expect to find a variety of spaceships and those of *Starblazer II* are of neat but pretty standard designs.

Far more interesting than these is the range of living creatures that inhabit the worlds. Stomping walkers, birds, rays and stargliders are just some of the superb creations you will encounter. One depot even sends you off to find a mechanical whale! The design and animation of these is brilliant and outstandingly attractive to manipulate.

Rainbird

SLIDER II

continued on page 29

TIMESAVER

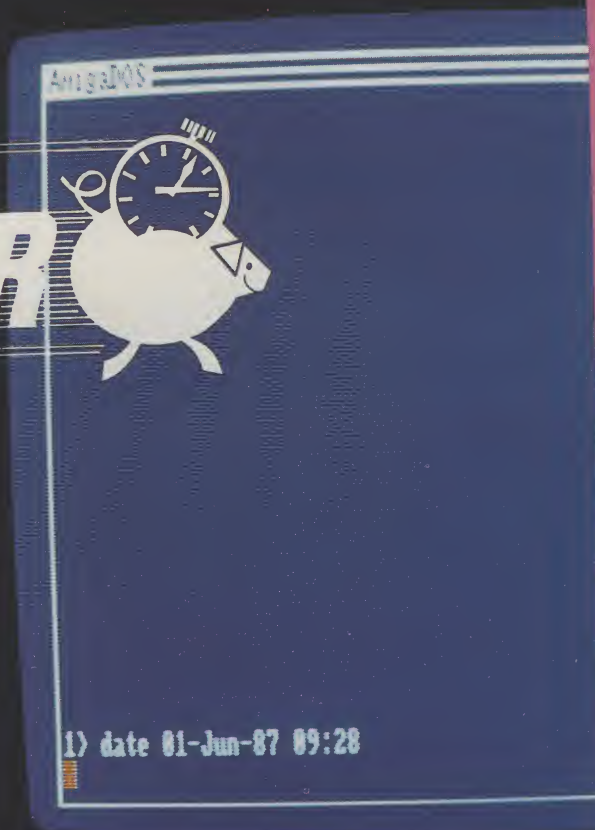
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John Foust — Volume 2 #8

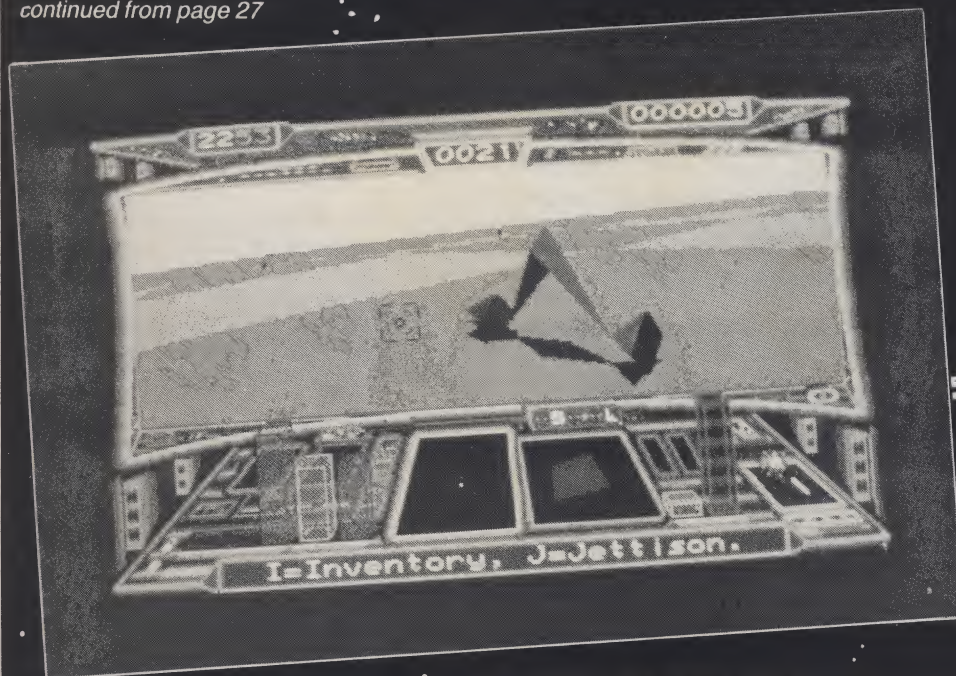
Amiga User International Says . . .

Since receiving my TimeSaver two weeks ago, I have discovered new applications for it on an almost daily basis . . . I have managed to use up only 1K (of 7K RAM available) with 34 substantial macros.

London, England — July, 1987

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continued from page 27



Included amongst the pre-game options is one entitled 'Painting with Rolf' (referring to the Aussie Mr Harris of course). This takes you through all the objects and animals

be used to give views of the Icarus from outside. For some reason, I cannot quite put my finger on it, it seems a lot more disorientating than Interceptor's equivalent, but perhaps my eyes are failing from too many

STARGLIDER II

found in the game, giving you control over their animation speed and letting you rotate them at various speeds through all three axes. The most fun part of this is the "paint" control which uses the object as a brush, tracing its steps as you move it around resulting in some amazing effects. That is just one of the excellent details of the game, refuelling the Icarus is another.

One method of refuelling is to fly at top speed along the sparking powerlines on the planet surface. Alternatively, you could hover around a volcano or fly dangerously close to the sun. Watch it though, the Icarus will melt if you get carried away! In fact the whole control room, icons and all, just drips away like hot wax. Marvellous. A classy piece of sampled music is played before the game starts and some very realistic effects do a lot for the game's atmosphere and realism.

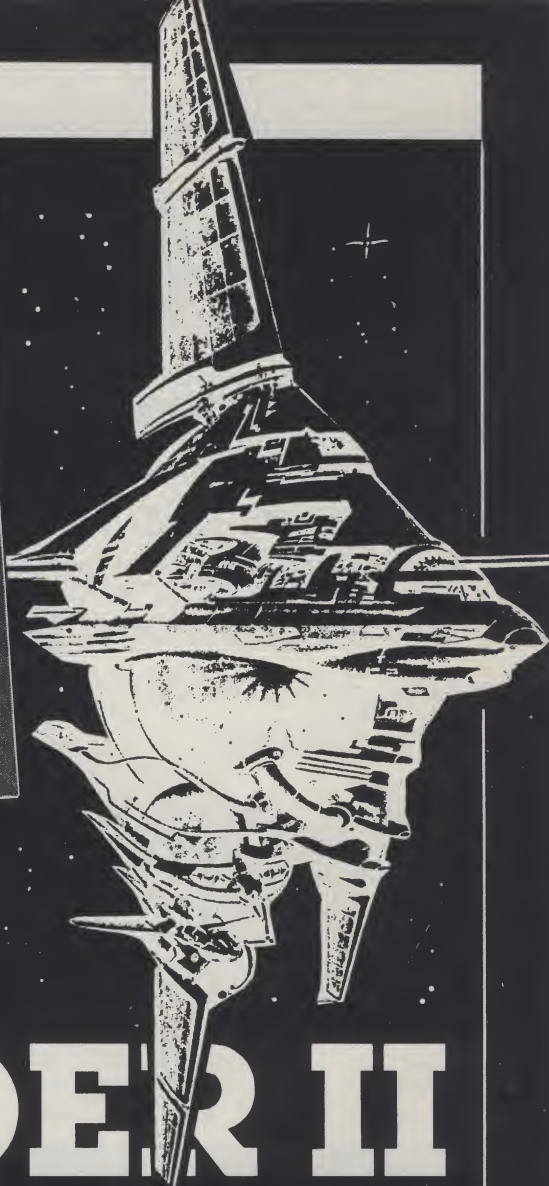
In general the 3D is fast enough to keep the excitement up, only slipping in the tunnels. Unfortunately it all slows down here which can be rather frustrating when you realise you have been flying around in circles for the last five minutes. As in Interceptor, the numeric keypad can

hours before a games VDU.

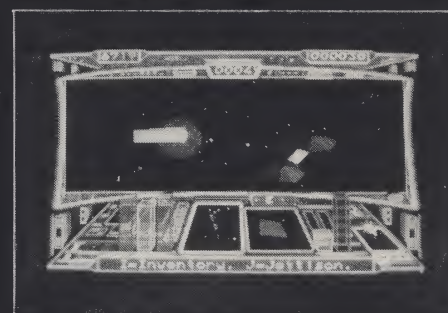
Most of the game is spent shuttling back and forth from one planet to another in search of particular objects, and bearing that in mind

"Stomping walkers, birds, rays and stargliders are just some of the superb creations you will encounter. One depot even sends you off to find a mechanical whale! The design and animation of these is brilliant and outstandingly attractive to manipulate"

ther is not that much to it. Even so, the sense of freedom is immense. You are given just about the right amount of territory to explore, not too much as to be overwhelming but enough to feel like a whole solar system is at your disposal. Starglider II is an



essential buy for Skywalkers everywhere! It may well turn out to be the game that does in 1988 for the Amiga 500 what Defender of the Crown did for the A1000 in 1986. Jez San, the leader of the Argonaut team, has surely earned his 'Jason'



captaincy and should be awarded a genuine Golden Fleece — or some such equally valuable award like an Oskar — for this brilliant effort. Buy Starglider II, you will love it!

T.H.

Graphics 95%
Sound: 89%
Playability 94%
Overall: 92%
Rating: AWESOME
Price: £24.95

ZING!SPELL

In the competitive world of business, a letter full of spelling mistakes could make the difference between winning or losing a sale. We asked John Walker to test a program designed to avoid such problems.

Meridian Software's Zing!Spell is the second stand-alone spell-checker to appear at a time when all new and updated old Amiga word-processors come equipped with their own.

Presumably some users are unhappy with the checkers they are given. Certainly Zing!Spell offers something found in few other Amiga spell-checkers: it will check every word as you type it, providing instant feedback to possible mistakes.

When it has its promised Thesaurus, which will be provided as a free update to all purchasers of the current 1.01 version, it should rank among the best and most versatile spell-checkers available.

It can be used with virtually every word processor or text editor, including the Amiga's Notebook and even the CLI (Command Line Interface).

Zing!Spell sits initially in a small window that collects the misspelt words. A line at the top of the window gives the number of misspelt words – or those ones not recognised by its 95,000 word dictionary.

In the unexpanded window, which can be moved to a convenient position at the top or bottom of the screen, only the most recent error can be seen but you can enlarge the window to look at and correct all your mistakes.

The right spellings will be automatically put into your text, providing your word processor is in its *Insert*, rather than *Type-over*, mode.

If you are uncertain about the spelling, you can call up Zing!Spell's dictionary, which will give you a list of suggested alternatives for your misspelt word.

This spelling aid is not as helpful as it might be. The problem is that, in its default setting, it looks up alternative words that contain the first two letters of the word you have typed. So if you typed "hilp" for "help", the program would

suggest three alternative words: hiccup, hilltop and hip.

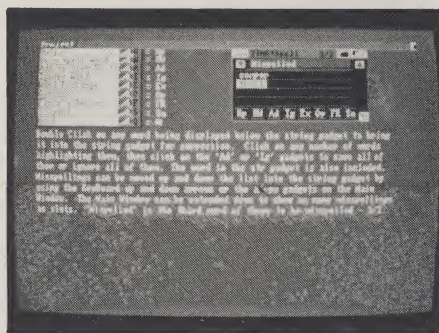
You can alter this default, by using an asterisk or a question mark as substitutes for letters. If you enter "h*lp", it will then list "help". If you were not sure how to spell conceive, then entering "con-c??ve" would bring up every word beginning with "conc" and ending with "ve".

This is fine but it involves more work than a similar function in WordPerfect's spell-checker. There, if you type "hilp", "help" is the first alternative its spell-checker suggests.

Zing!Spell gets confused by misspellings that contain numbers, treating the letters each side of the number as separate words. It will pass over "charm8ing" as correctly spelt, though typing "charm8ing" results in "ing" being put up as a misspelling.

"Zing!Spell does more than check each word as you type it. It offers four other ways of checking your spelling"

Zing!Spell does more than check each word as you type it. It offers four other ways of checking your spelling, three of them as a memory resident program.



If you find it too depressing to have every word checked as you go, you can choose to have them checked at the end of each carriage return. In this mode, you will then have to correct the words before you can continue with your typing. As an alternative, you can have the program check individual words whenever you are doubtful about their spelling – or wait until the end of the document and then have everything checked at once.

A separate program, Zing!Batch, will check existing text files on disk. Unfortunately, it requires you to make corrections as you find them. It would be better if it also gave you the option of checking all the words together at the end of the document.

Zing!Spell will check only one document at a time but if you have more than one document in memory you can switch Zing!Spell between them.

One novelty about the program is that it supports ARexx. This is a system that allows data to be passed from one program to another with human intervention. You can also set the priority level for Commodities Exchange, which handles the order in which the Amiga deals with data when multi-tasking. A disadvantage is that you are expected to load Zing!Spell before your application program, which I found a nuisance. I have set up my applications programs to my own preferences. Scribble! and WordPerfect, for example, load with the margins and line-spacing set as I want them. Using Zing!Spell as an on-line spell-checker makes this impossible to achieve without rewriting all my startup-sequences. However, I found I could load Zing!Spell from the CLI after an application program was running but I could not do the same from the Workbench. Then my attempts either resulted in failure or a visit from the Guru.

Zing!Spell comes on a single unprotected disk with a 47-page unindexed

cont. on next page

ZING! SPELL

continued from page 30

manual. Initial impressions were not good. It does not do much for anyone's confidence when the second page of a spell-checker's manual contains two spelling mistakes! One has been picked up in the ReadMeFIRST file contained on the disk but not the other ("Original" for "Original").

The manual contains the announcement, "We are proud to say that this manual was produced on an AMIGA! We used Professional Page v1.1 by Gold Disk." If I were Gold Disk I think I would sue for defamation. Badly laid out and very poorly printed – it looks as if it has been produced with a dot-matrix printer on plotting paper – the manual is a very poor advertisement for that program and for the Amiga.

Statements such as "This Window is described in more detail in the chapter on Help Spell Window" are not much help when there is no chapter on the Help Spell Window. You have to go to the chapter entitled Help With Spelling.

It is a small difference, I know, but it can be confusing – especially since the

illustration shows a window labelled "Help With Spelling", when what comes up on the screen is labelled 'Spell Help Window'!

Zing!Spell works best with an expanded memory, since you need 300K of free memory when running the program. It is possible to use it with less RAM available, by keeping its 95,000 word dictionary on disk rather than in memory, but this slows down the operation of the program.

You have a choice of controlling its operations by using keyboard commands or by clicking the mouse-pointer on a series of cryptic buttons at the bottom of Zing!Spell's window. These are far from intuitive, containing two letters – Hp, HW, Ad, Ig, Ex, Op, FR, Su – to indicate their function.

You can create your own custom dictionaries as you use the program. More than one such dictionary can be loaded into memory in addition to the main dictionary. There is also a useful extended Search and Replace function that allows you to type a cut-down version of a constantly used word or phrase and then replace it later with a fuller version. Thus you can type "ad" and then replace it with "antidisestablishmentarianism". You can, of course, use any word processor's Replace function to do the same. Where Zing!Spell scores is that you can save a dictionary of such replacements.

The only provisos are that the shorthand version should not form a recognisable word and that the replacement word or phrase should not be longer than 120 characters.

The program will also check your punctuation – within rather strictly defined limits – but it does not pick up typing double words, such as "the the".

Zing!Spell claims to be one of the fastest spell-checkers available. In a time trial I found it was slower than GoldSpell which, in turn, is much slower than the built-in spell-checkers of WordPerfect, Scribble! and ProWrite 2.0.

Zing!Spell took 100 seconds to check a correctly spelled 4,000 word document loaded into RAM. GoldSpell's time to check the same document was 53 seconds. Scribble! takes less than 30 seconds, WordPerfect less than 20 and ProWrite exactly 10 seconds to check the identical text.

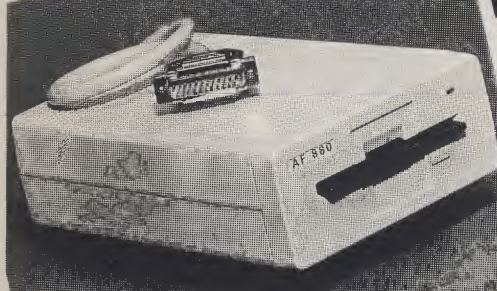
But Zing!Spell's appeal does not lie in its batch-checking. It is the program's on-line facilities that make it well worth considering for all who like a constant check on their words. If its promised thesaurus turns out to be a good one, then it may well become an indispensable aid to correct writing.

Price: £55.00

J.W.

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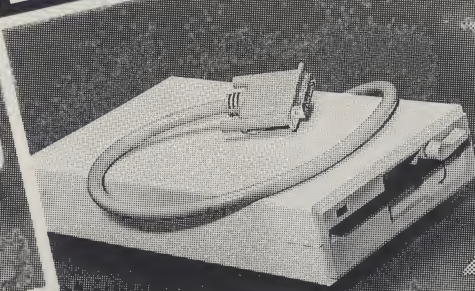


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PHILIPS MONITOR TUNER

Does your computer monitor have a dual identity? Peter Lee's does – he Explains . . .

A home computer monitor's average use is likely to be around a couple of hours a day. Considering how much they cost, they must be one of the most under-used resources around.

Being the dedicated beast it is, there is little you can do with one when the computer is switched off. Maybe stick a clock or a photograph on top? Apart from that they just sit there gathering dust and depreciating . . . Luckily there is no need to worry about the cost-efficiency of your investment any longer thanks to the introduction of a hi-tech add-on which will convert the monitor into a television set – at the flick of a switch.

The Philips AV7300 is a small TV tuner about the size and weight of a modest hard-back book (25 × 19 × 5.5 cm); the tuner under test came in a light beige plastic case and was put through its

paces using an Amiga 1000 and Commodore 1081 monitor. The mains-powered tuner will work with any monitor which has CVBS and audio IN connections and has a pass-through to enable the computer's signal to enter. A sliding switch on the front panel selects either computer or tuner mode.

The unit is supplied with the appropriate leads for connecting to the monitor and comes with twin telescopic aerials which provided excellent quality pictures in my part of the country but which can be replaced by your own antennae if you live in a poor reception area.

The tuner took literally five minutes to set up, with the biggest headache being where to put it! The top of the 1081 slopes and in any event I could not bear to stare at a screen which looked like one of those quaint TVs from US TV sit-coms.

If you have an outdoor aerial, you can just as easily put a splitter on the cable and run an extension to your computer haunt, giving possibly a crisper picture and also allowing a more discreet positioning of the tuner.

“The tuner took literally five minutes to set up, with the biggest headache being where to put it!”

The power cable is a generous length – but unfortunately the leads which connect to the monitor are around a metre long, which restricts the siting unless you buy a couple of extension leads. As channel selection is by means of a push-button front panel, you cannot put the tuner too far away. In fact it is something of a logistical nightmare trying to cram a tuner on a desk already cluttered with drives, modems and printers – take my wife's word for it!

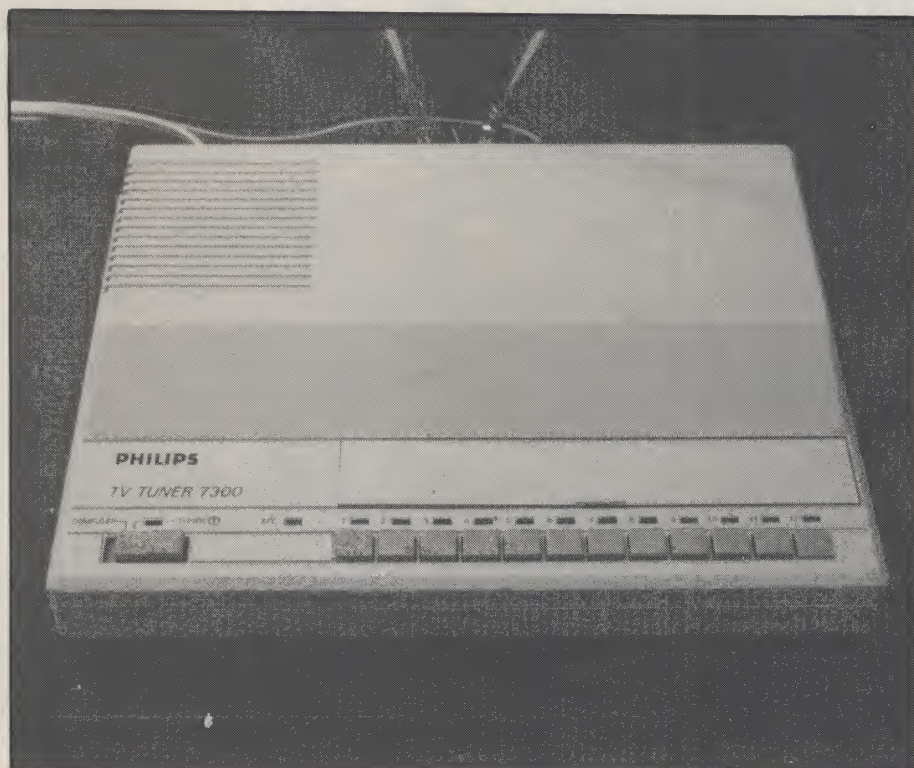
Up to 12 channels can be set by tuning the control dials hidden under a flap, which also activates the automatic frequency control when it is closed.

The quality was all you could expect and was even an improvement on some TV sets I have seen thanks to the 1081 monitor's excellent display qualities. It goes without saying that you do not need your computer switched on while using the monitor (which has to be on) as a TV and in fact problems of interference do arise if you have the Amiga running simultaneously. The monitor's brightness, colour, contrast and volume controls are all active on the TV picture, so in effect for £69.95 you have got a first rate TV receiver.

My only problem is – where on earth is the tuner going to sit. **P.L.**

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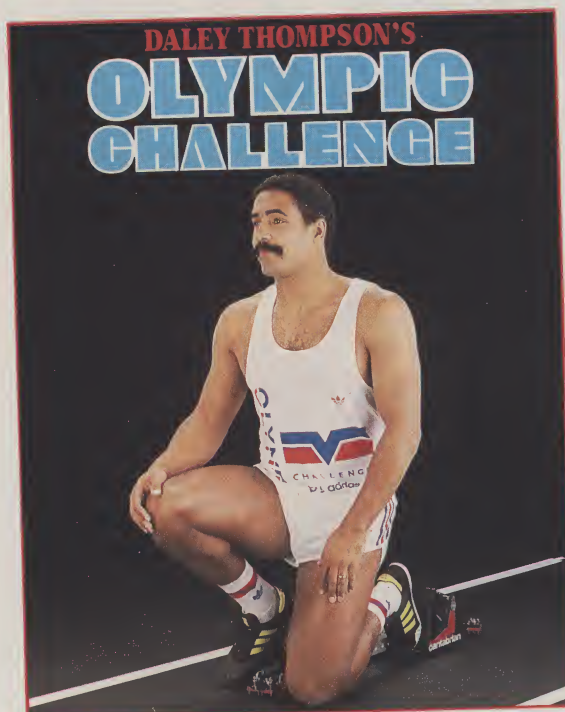
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FROM

ocean



Digitised graphics, referencing from full colour photographs of Daley Thompson himself, take full advantage of the Amiga's and the Atari's capabilities giving you a state-of-the-art sports simulation. Featuring an optional game play which allows you to 'work out' in the gym where your performance will directly affect your performance in the final events themselves — another first for Ocean!



FROM

ocean



Dinamic's attention to detail and superior graphic presentation add an extra dimension and Army M is no exception. A full-blown shoot-em-up takes you through several levels where you will take command of first an armoured jeep, then helicopter and finally, on foot as you make your way through the jungle to the enemy's headquarters ultimately to seek out your documents.

FROM

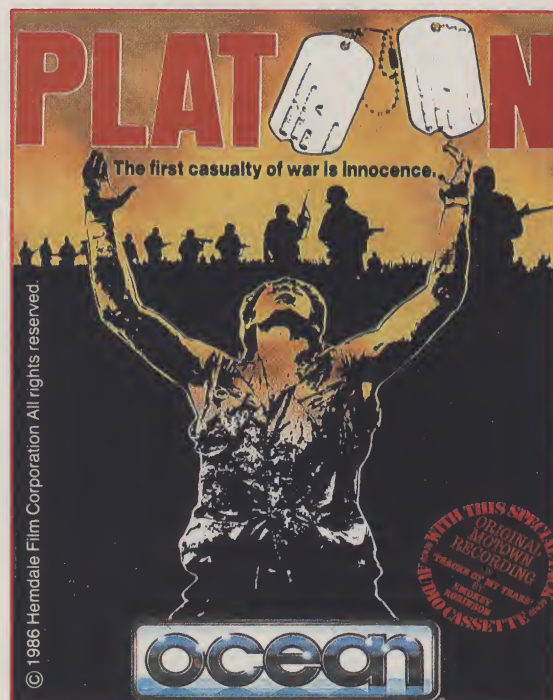


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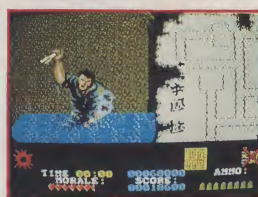
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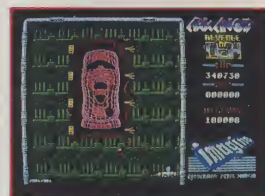
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Exceptional graphics, innovative game design and digitised sound all add up to recreate the atmosphere generated in the box office smash hit. Closely following the original storyline you take your platoon, selecting individual men for assignment, who will encounter the enemy and their many booby traps as you seek to find the enemy's underground headquarters. On entering the warren of tunnels you will need flares and a keen eye – your enemy will lunge at you, from beneath the waters which flood the tunnel floor, wielding vicious knives – the atmosphere itself is enough to kill!



One phrase sums up the success and appeal of Arkanoid – "I'll just have another go!" Arkanoid is addictive! Using all the capabilities of the 16 bit micro this conversion is almost an exact replica with all the excitement of the original Taito coin-op smash hit. This is Arkanoid – the blockbuster.



OF THE AIR

MORTVILLE MANOR A.C.T.I.V.E

There is nothing like getting in the mood to write a review so pardon me while I just slip into this old striped jersey, pop a faded beret on my head, hang a string of onions round my neck and go "Ee-aw, ee-aw, ee-aw" a few times.

In case you have not realised, this game has a very strong French connection. Not only was it written in France but the whole thing has a very Gallic flavour. Mortville Manor is a graphics based, menu driven adventure with something special added, that something being speech. Not just a few snippets of ordinary speech, either – this game gives you oodles of English as she is spoke in France. Admirers of Inspector Clousseau's vocal pyrotechnics will take to it like a derk to warterre.

To put you into the mood Français, the game opens up with a piece of laid-back music over which the voice of some cool French dude can be heard humming and singing the title of the game. Your task in Mortville Manor is not terribly clear – that is part of the challenge of the game.

All you know at the beginning is that your old friend Julia has sent you an urgent telegram. "Very ill. Situation desperate. Danger of death. Very worried for my family. Counting on your prompt help. Discretion necessary. Whatever happens, above the wall of silence, I will give you a sign." So off you go to Mortville Manor – but naturellement, you are too late. Zut alors – Julia est morte!

The main part of the screen is taken up by a picture of the current location – and quite impressive these pictures are, too. Down the right-hand side, a panel tells you who else (if anyone) is present, the current atmosphere and the time and day. The bottom of the screen is reserved for prompts, brief descriptions and a confirmation of your input while along the top of the screen is a set of pull down menus used to operate the game.

An Inventory menu tells you what objects are currently in your possession, with the most recently handled item being highlighted. Although you can add items to your collection (up to a certain limit), I have not yet discovered how to remove an object from your possession – or indeed if you can get rid of anything once you have picked it up. The instructions, evidently translated from the original French, are silent on this point.

The Action menu is a list of verbs from which you make your selection with the mouse. Occasionally a noun needs to be specified with the verb, accomplished by pointing the mouse at the appropriate object in the main picture. A Self menu is an extension of this – among other things, it lets you operate upon the items in your inventory. Any objects found or examined are shown as a separate, large-size graphic when called up.

The Movement menu lists all the places to which you can go e.g. kitchen, chapel, etc. In addition, if you are in a location with multiple exits (for example, in a corridor with several doors leading from it), the menu also has an item that allows you to point at your choice in the picture.



The most interesting and novel menu is that which lists all the characters present in the room – the Discussion menu. Selecting a character from this brings up a small but convincing, animated face which starts to chat away in English, albeit 'eavily accented. You are also presented with a lengthy list of topics upon which you may request the speaker to converse. The list gets longer the more you discover about the game. Sometimes you may be surprised into a conversation with a character – serves you right for poking your French nez into places where it is clearly unwelcome.

Because of the strong accents, your ears may take a little while to become attuned to the vocals but understanding is not a problem at all. The game permits you to force the speaker to repeat his or her statements until the cows come home.

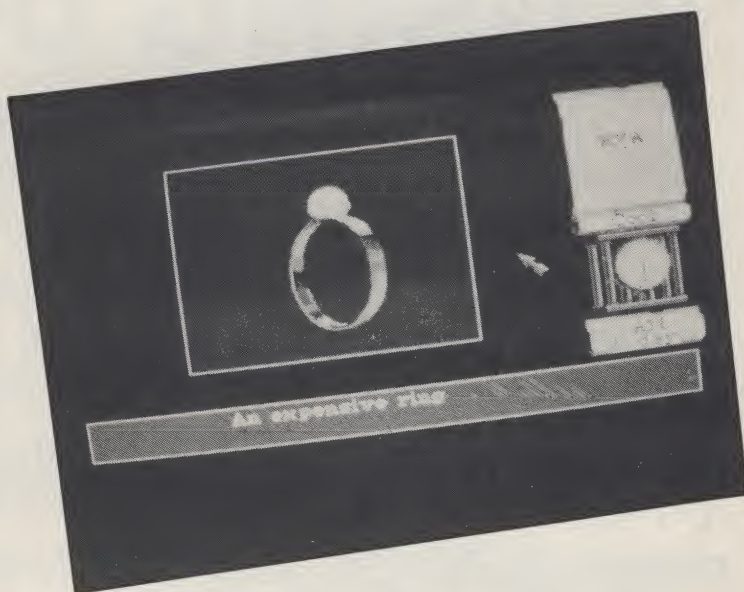
As well as the speech, there are plenty of digitised sound effects – footsteps, bells, knocks, owls and so on, all adding hugely to the fun of the game.

“Down the right-hand side, a panel tells you who else (if anyone) is present, the current atmosphere and the time and day.”

Yes, this adventure is definitely different from the usual run of things and although it has the odd translation quirk here and there (any attempt to take something you should not is met with “Not discreet. Be content to watch”), it is certainly one to add to the collection. Mortville Manor has first rate graphics, sound effects, atmosphere, story and puzzles – and hearing the characters speak is unusually good fun. I enjoyed it hugely and look forward to Maupiti Island, the soon-to-be released sequel.

Price: £24.95

B.C.



MORTVILLE MANOR

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USING DELUXE PAINT II

Deluxe Paint II must surely be one of the Amiga's most popular programs. Peter Lee examines a book professing to teach you how to tap ALL of the power of this, the premiere Amiga graphics program.

The manual which comes with Electronic Arts' top-selling program Deluxe Paint II is excellent. So why pay out more for another user guide? Good question. Cynics might even argue that this kind of book has a ready market among people who did not actually get a manual because their copy of the program was what is euphemistically called 'a backup'.

Luckily for manual-owners there is more to Steven Anzovin's book than simply a crib from the EA manual. Having used DPaint II since it came out (and DPaint for a lot longer) I was pleasantly surprised at the detail which has been included. Not simply a list of this superb

program's many qualities, the book actually doubles as an artistic primer, giving details on composition, perspective, special effects and the like. It plants the seeds of ideas for using DPaint's power and provides a useful companion to the program's reference guide.

Anzovin's style is informative and unobtrusive with a directness which underlines his expertise in the program's use. Early chapters focus on the nuts and bolts of the program – the kind of routines which users familiar with DPaint will skip over; then techniques are developed which as well as describing the paint program's functions also give examples for using them in a creative way.

Alongside the general-purpose hints for using DPaint to its best advantage – for instance how to achieve a particular artistic effect – are details on drawing principles themselves. The two – techniques and technicalities – are cleverly mixed into stimulating exercises and examples. There are also small sections on other useful topics – for instance, how to photograph the monitor screen, using Genlock and an informative section on printing, full of good general advice. Perhaps the wisest information the book contains is this: "... creating art isn't merely a matter of owning the right tools ... You need to set a goal, conceive of an image that communicates an idea or emotion and then learn the techniques necessary to create that image." This advice is well implemented by the author and ideas also abound for using artwork in business presentations, newsletters, stationery, catalogues and adverts, with some well-designed examples.

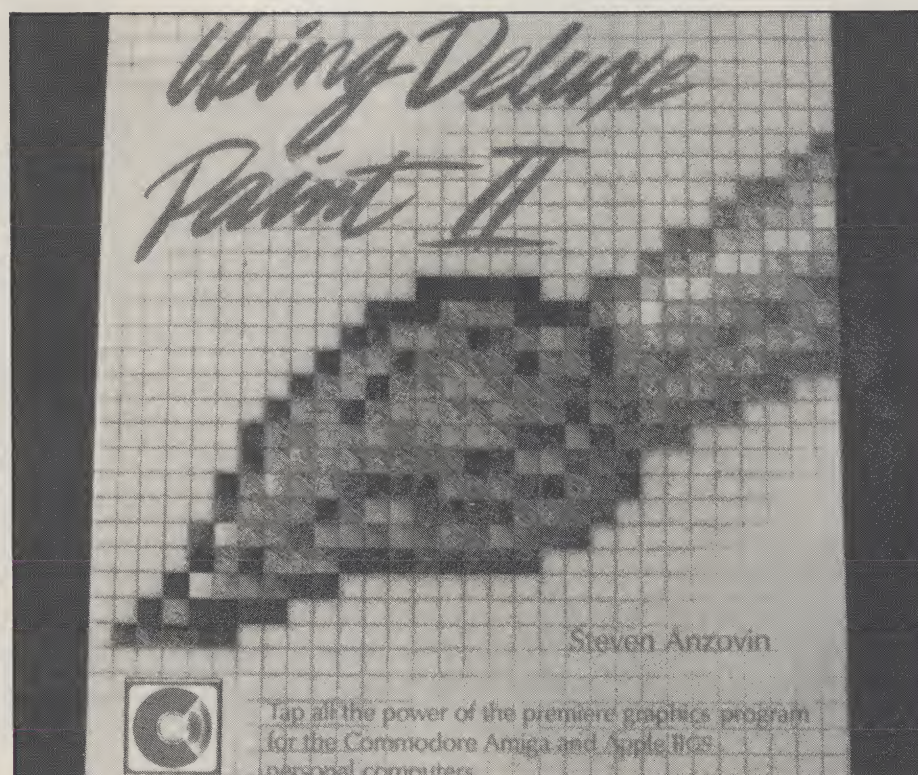
The book is a largish paperback of over 200 pages, with around a hundred illustrations; disappointing to find none in colour for this price (US\$19.95) and strange not to have at least the colour cover drawn with Deluxe Paint. The book also features a minor annoyance in also covering the Apple IIGS version of DPaint, so sometimes instructions refer to either one computer or the other, which at times clouded the topic under discussion.

Newcomers to the program and to computer art in particular, will find this guide the most valuable. Even as a 'veteran' user I discovered interesting items dotted throughout the book, though certainly not sufficient to make this a good buy for anyone who considers themselves familiar with the program and a half-way decent artist. However, for newcomers to Dan Silva's work of genius, the book should go a long way to stimulating creativity.

P.L.

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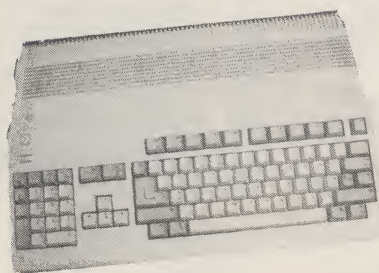
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"THE PROGRAMMERS GUIDE TO THE AMIGA"

Robert Peck – Sybex £24.95



For most of us, the Amiga is more than just a new machine: it is a new concept. For this reason, climbing the Amiga learning curve can be tough and good documentation becomes essential. The official Commodore-Amiga manuals, published by Addison-Wesley, set the high standard for others to reach or even surpass.

"The Programmers Guide to the Amiga", by Robert Peck, aims to do just that. Mr Peck is the author of the Amiga ROM Kernel Reference Manual and is co-author of the Exec and Hardware Reference Manuals. He has also written some of the C examples in these manuals and on the developers Toolkit disk. Robert Peck has been involved with the Amiga since the earliest days and is regarded as an authority to be respected.

The book starts with an overview of the Amiga software and hardware hierarchy. The author maps the various hardware and software building blocks, explains their function and how they relate to each other and identifies the different software levels. The Amiga programmer can interface at any of these levels, or indeed, directly with the hardware. Generally, the higher level interfaces are simpler and offer greater function, while the lower level ones are more complex but offer greater flexibility and, perhaps, improved performance. This overview will help you make such design decisions.

Chapter 2 introduces AmigaDOS concepts and related functions, including the directory structure and those CLI commands which have an equivalent library function. Some familiarity with the CLI is assumed but even MS-DOS programmers should feel at home. Throughout the book, every feature discussed is backed up with a C example. The book is well-endowed with such examples, in-

cluding a simple paint program (these programs are available on disk). If like myself you are not a C programmer, take the trouble to learn to read the language. Most Amiga documentation assumes you can read C and a knowledge of structures and pointers will help you understand the Amiga system software, particularly the many data structures. All C examples in this book are clearly documented.

Chapter 3 introduces Exec. The book allows you to skip this chapter and get straight into the Amiga graphics, although you might later have to refer back to it. Wisely, the author dedicates chapter 9 to multitasking and concentrates on the more immediate needs: memory allocation, lists, signals and messages. The chapter ends with libraries, devices and device I/O.

Chapter 4 deals with the drawing and text graphics functions and with the blitter. The book does not deal with low-level graphics functions and structures such as viewports and views. Instead, this chapter introduces Intuition screens and windows, which are built upon such structures. If you require some of the more exotic Amiga display modes such as overscan, you will need to read the ROM Kernel Reference Manual. The rest of Intuition is dealt with in chapter 5, by the end of which you will have a working paint program. Animation of sprites and bobs (blitter objects) is dealt with in chapter 7. However, if you want to use the Amiga routines for sequenced animation of bobs, you will again have to refer to the ROM Kernel Reference Manual.

The next chapter introduces some of the Amiga devices: the timer, input and particularly the console device, which allows an Intuition window to emulate a

"normal" computer screen. Chapter 8 introduces sound and the audio device.

Two topics I miss in this book are the narrator device, which allows the Amiga to speak and the Animate function, which allows sequenced animation of bobs to produce complex moving objects. These are discussed extensively in the ROM Kernel Reference Manual but I cannot fault any of the included material.

This book is 350 pages of priceless Amiga experience. In particular, having extensive working code to backup the text is a valuable bonus. If you have got a C compiler, this book will get you programming straight away.

If you are an assembler programmer, learn enough C to be able to read the examples. Your assembler should supply the Amiga include files. To find out what registers the different parameters are passed in, have a look at the Basic FD files on your Extras disk, or better still, get the ROM Kernel Reference Manual. I can also recommend Programming the 68000 by Steve Williams, also published by Sybex. Chapter 8 of this book is dedicated to operating systems. Having explained many relevant concepts, the author then goes on to design and code a simple(?) multitasking, message passing operating system. This should give you some insight into the workings of the Amiga Exec.

Books like "The Programmers Guide to the Amiga", with its thorough-going treatment and wealth of examples, will help you make the Amiga into a successful experience.

S.B.

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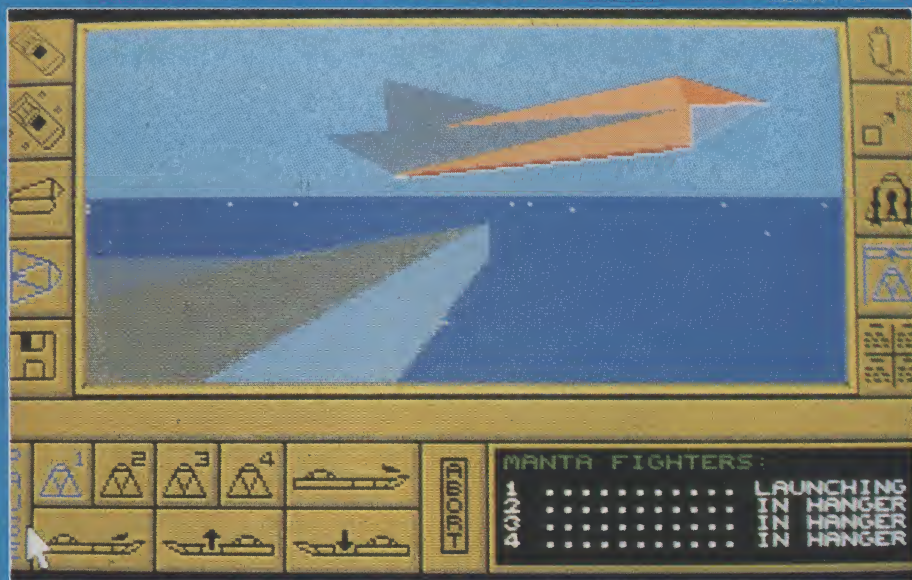
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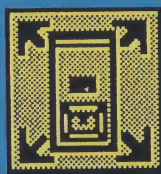
What this amounts to is a battle for power between you and the enemy. Each side fights it out for control of the islands and in this it reminded me of Defender of the Crown, the islands replacing the territories of England. The similarities stop there however, in practice Carrier Command is very different. Your carrier houses three amphibious "walruses" and three "manta" fighter jets. These are your main tools used in taking of the islands.

Walruses can be programmed to travel a set course or driven by the

With the increasing sales of the 16-bit machines, more and more designers are turning to solid 3D graphics as a means to convey their game concepts as realistically as possible. In tune with the trend, Carrier Command takes the form of a futuristic and highly-complex strategic simulation, which most players will find a notable challenge.

First of all, I cannot pretend that I did not find the game's 64 page instruction book confusing. Call me a brain-dead alien zapper if you will, (O.K., you are a brain-dead alien zapper. Are you happy now? Ed) but the manual is a lot for the eager gamer to take in; "All this talk of the ACC Epsilon, Gamma Base and K-16 sections, I wish they would get to the point!" I thought. Spurred on by the promise of involving gameplay and the smooth 3D graphics I persevered and this is what I found.

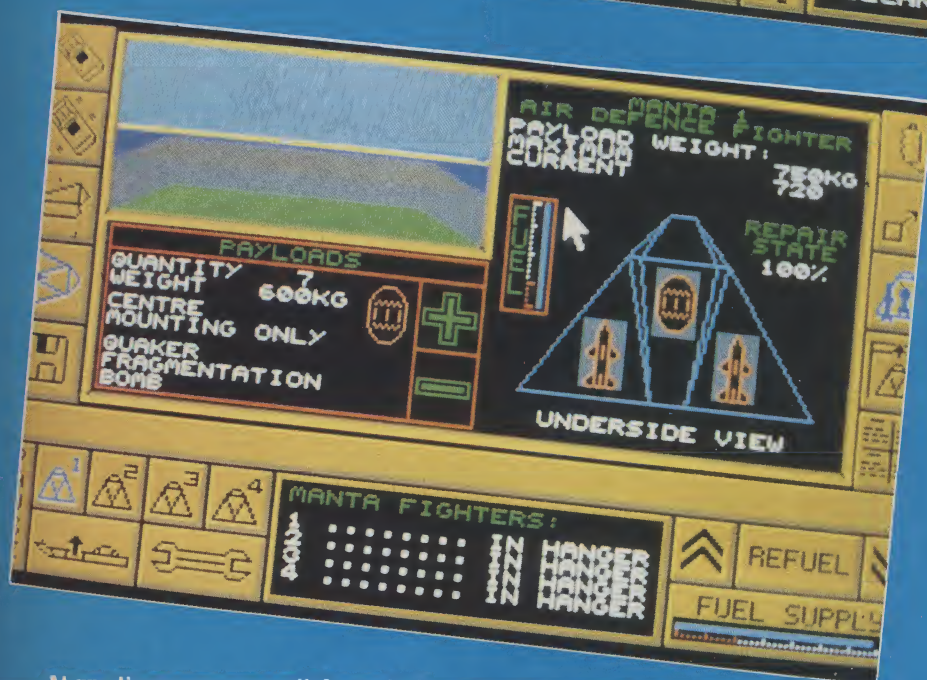
Whilst on a routine search for fuel deposits beneath the sea bed, a group of newly-formed islands were discovered. These were the result of some unexpected volcanic activity which has lead the islands to be one of the biggest sources of energy on Earth. Their colonisation was about to get underway with a pair of remote controlled aircraft carriers when the enemy's forces gained control of one of the carriers. They demanded \$15 billion within 72 hours, threatening to destroy the islands if they were not paid.



CARRIER COMMAND

player onto the islands. Here, enemy controlled bases can be made to switch allegiance by firing a virus bomb into the them. Uninhabited islands can be built upon by releasing a self-constructing base. It is possible to have all the three mantas and walrus in action at once under autopilot, whilst cruising the seas and fighting off attacks from enemy jets. The trouble is that you need to multi-task your brain to keep track of the proceedings, like a kind of mental juggling.

'Enemy controlled bases can be made to switch allegiance by firing a virus bomb into them'



presented in the form of simple grids and character graphics. The solid 3D graphics are a superb way of updating this theme which adds an enormous amount of atmosphere



and realism. I would not advise everyone to buy it this minute, but it has just too much in it to be passed-off as just another flight simulation. Take a very close look at Carrier Command, there is an enormous amount to recommend it and among these who have played it here, no-one has found it boring and it has already gained a number of Carrier Command fanatics. You could well be one of them. Recommended.

At any time you can switch control to any of the active craft, either controlling it or as a passenger under autopilot. Although the view is always from the cockpit (no spotter plane views) the programmer's 3D routines can be seen at their best by tailing an active Manta as it goes about its business. As well as the navigation of the walrus and mantas, more icons give access to the many status, map and weaponry selection screens.

The sampled soundtrack that plays over the title screen also comes on an

audio cassette with the game. There is little else in the way of sound, but the engine and explosion effects are realistic.

Carrier Command's graphics will attract gamers of all kinds, but the underlying game will not be everyone's cup of tea; anyone looking for an Interceptor-like flight combat simulation could find themselves disappointed and frustrated. It is really an advanced progression of the colonisation theme, in the past very often

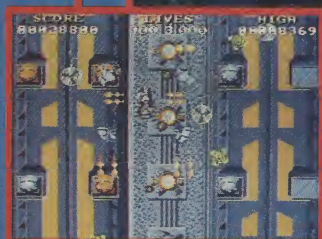
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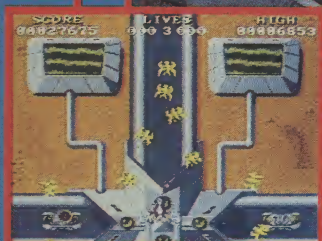
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QUAD

More useful tips from our 68000 mentor – Giulio Zicchi. This month – How to access the joystick ports.

In this month's Quick and Dirty we are going to take a look at the joystick ports on the Amiga, which differ slightly from the norm. On a machine such as the C64, the joystick registers resided in a Complex Interface Adaptor chip and were memory mapped as an addressable register in which a bit set or cleared represented a switch open/closed on the connected joystick.

The Peripheral Interface chips used in the Amiga are still memory mapped as addressable registers but some of the bits at these addresses pulse which makes reading them not quite so straightforward.

The connectors used on the Amiga are the standard 9-pin D type which are de rigueur on nearly every make of home computer now. The two addresses that we are interested in for the purpose of reading a connected joystick are currently \$DFF00A and \$DFF00C for ports 1 and 2 respectively and fire buttons are read at bits 6 and 7 of location \$BFE001 (bit 6 for port 1 and bit 7 for port 2). I use the word currently as it is wise to bear in mind that future versions of the Amiga may map the custom chips elsewhere in memory.

These registers are read only word registers in which the current state of the right joystick switch is represented by bit 1 being set and the left switch by bit 9 being set. To calculate the state of the other two directions, however, it is necessary to generate the exclusive-or of bits 0 and 1 for the down switch and bits 8 and 9 for the up switch. This is easily accomplished by copying the read state of the register into another data register, shifting right one position and then sorting the two data registers together before polling the relevant bits.

If you now turn to the listing you will notice that I have assembled the state of the currently set bits into the lower five bits of D7 where they have the following meaning:

0	UP
1	DOWN
2	LEFT
4	RIGHT
5	FIRE

This is a throwback to my C64 programming days but is the way I find most convenient, enabling a call to JOY READ to return the current status of the port.

This short program also illustrates use of the DOS write routine to output text to the CLI. Once the library is successfully opened, a call to OUTPUT should return the current output handle for the CLI from which the program is started. The WRITE routine requires three parameters in order to perform correctly. The handle is passed in D1, a pointer to the buffer where the text is stored is passed in D2 and the length of the text is held in D3. This is also a very convenient way of sending debugging information from most programs to a chosen CLI window.

G.Z.

```
opt    c-,d+
incdir "sys:include/"
include libraries/dos.i
include libraries/dos_lib.i
include exec/exec_lib.i
```

```
JOY1DAT    equ    $dff00c
FIRE_BUTTON    equ    $bfe001
```

```

lea    doslib,a1                ; pointer to library string
moveq  #$00,d0
callxex    openlibrary          ; attempt to open
tst.l    d0                    ; D0 holds library base
beq      error                  ; else error
move.l    d0,_dosbase           ; store pointer
calldos    output               ; get CLI output handle
tst.l    d0                    ; zero = problem....
beq      error                  ; so quit
move.l    d0,handle             ; else store handle

loop
    bsr.s    joy_read            ; call port two reader
    bsr.s    print_status        ; print to CLI
```

cont. on next page

QUAD continued

```

andi.b  #$40,$bfe001      ; test for left mouse
                                button
bne      loop              ; loop if up
error
moveq    #$00,d0           ; clear for clean exit
rts

```

JOY_READ

```

moveq    #$00,d7           ; clear signal reg.
btst     #7,FIRE_BUTTON    ; check fire button
bne      jr_get_switch     ; not pressed
bset     #4,d7             ; else set fire bit
jr_get_switch
move.w    joyldat,d0        ; get joystick status
btst     #1,d0             ; bit 1 = Right
beq      jr_tryL           ; no
bset     #3,d7             ; else set Right bit - exit
jr_tryL
btst     #9,d0             ; bit 9 = Left
beq      jr_tryD           ; no
bset     #2,d7             ; else set Left bit - exit
jr_tryD
move.w    d0,d1            ; calculate the exor for U/D
lsr.w     #1,d1
eor.w     d1,d0
btst     #0,d0            ; bit 0 = Down
beq      jr_tryU           ; no
bset     #1,d7            ; else set Down bit - exit
jr_tryU
btst     #8,d0            ; bit 8 = Up
beq      jr_done          ; no
bset     #0,d7            ; else set Up bit - exit
jr_done
rts

```

PRINT STATUS

```

tst.w     d7              ; d7 = 0 = don't print
beq       print_done      ; so exit
move.l     handle,d1       ; handle for write
move.l     #up_string,d2   ; pointer to first string
move.l     #offset,d3      ; number of bytes to write
btst.b     #0,d7          ; now test each bit
beq       stat_down       ; branching if not applicable
bsr.s     print_it        ; else print it to CLI window
stat_down
add.l      #offset,d2      ; add offset to next string
btst.b     #1,d7          ; test for down
beq       stat_left       ; no - branch
bsr.s     print_it        ; else print string

```

```

stat_left
add.l      #offset,d2      ; same for left status
btst.b     #2,d7
beq       stat_right
bsr.s     print_it
stat_right
add.l      #offset,d2      ; same for right status
btst.b     #3,d7
beq       stat_fire
bsr.s     print_it
stat_fire
add.l      #offset,d2      ; same for fire status
btst.b     #4,d7
beq       send_CR
bsr.s     print_it
send_CR
add.l      #offset,d2      ; send carriage return
move.l     #01,d3
print_it
movem.l    d1-d3/d7,-(sp)  ; save relevant registers
callDOS    write          ; call DOS library routine
movem.l    (sp)+,d1-d3/d7 ; retrieve registers
print done
rts
doslib     dc.b    "dos.library",0
even
dosbase    dc.l    0
handle     dc.l    0
up_string  dc.b    "UP    "
even
offset     equ     *-up_string
dc.b       "DOWN  "
even
dc.b       "LEFT  "
even
dc.b       "RIGHT "
even
dc.b       "FIRE  "
even
dc.b       10
even

```

All of the 68000 assembly language articles in this series were written using the Devpac Amiga assembler from HiSoft. Consult your assembler manual to reconcile any differences.

SLIDING PICTURE PUZZLE

Phil Wilkes

If you are anything like me, by the time you have had your Amiga for only a few months you will have amassed quite a collection of artwork from a variety of sources. You may well have had a disk or two of pictures supplied with your machine and most users will have DeLuxe Paint which includes some sample artwork. There are many disks available in the Public Domain which contain pictures and slideshows. Then of course there are your own efforts...

Having gathered a collection of computer art, what do you do with it? It is all very well putting them together in a slide show but how many times can you see that before the fascination fades? What you really need is a program which uses any picture in your collection as the basis for a game!

Well OK, I admit you cannot just use any picture with the program presented here but you can use the most common format – 32 colour lo-res pictures which are 320 × 200 size (the default format used by DPaint and most other art programs). The program uses such pictures as the basis for a sliding block picture puzzle. You know the sort of thing – the picture is divided into a five by five set of tiles. These tiles are then randomly scrambled and you have to slide tiles about in order to unscramble the picture again.

The program is fully mouse controlled and can be used with any normal lo-res picture. It allows you to set a level of difficulty which determines how much the tiles are scrambled in the first place. On completing the puzzle, you are told how many moves were taken and also given an Efficiency Rating. This relates your number of moves to the number of moves used to scramble the picture in the first place. Try achieving 100% on level 9!

TYPING IN

The program uses a standard routine for loading an IFF picture file. You should have this on your Extras disk which also contains AmigaBASIC. Follow these instructions carefully and you cannot go wrong (you see how much faith I have in you!).

First load Workbench in the usual way. Once loaded, insert a copy of your Extras disk (always use copies and keep your originals safe!). Double click on the disk icon to open its window and then double click on the BASICDemos drawer. You will see icons displayed for various demonstration and utility programs. Find the icon for the snappily named "LoadILBM-SaveACBM". Double click on this to run it. You should see the screen clear and a program description displayed, with a prompt asking for a filename. Press the right hand mouse button to bring up the menu bar and select STOP from the RUN menu.

Using the WINDOWS menu, display the LIST window. I usually move and resize this so that it fills the whole of the display. Use the left hand mouse button to highlight a large block of program text from the beginning of the program down several full screens to the line "LoadILBM". This is the start of the routine which we need. Having highlighted this block, select CUT from the EDIT menu – the block will disappear. At this point it is best to save the program with its new name, so select SAVE AS from the PROJECT menu (NOT SAVE as this will overwrite the original program) and type in a new name. I used SLIDER but anything will do.

You are now ready to type in the listing as presented. This should be done above the LoadILBM routine. When the listing has all been typed in, save again. You can just use SAVE now as BASIC remembers and uses the name last used.

GET SLIDING

On running, the program prompts you for the name of a picture file to use. The LoadILBM routine will load any non-HAM screen but the program as it stands is only designed to work with lo-res, 320 × 200 screens. It will be up to you to select a suitable source picture. For test purposes, I recommend using Heart.IBM which is already on the Extras Disk. Once fully operational, any picture source can be used.

Be careful to choose a picture which has detail distributed over the whole screen. Pictures like King Tut, which have large areas of flat colour, will make sorting the picture very difficult indeed! This is because several of the tiles will look identical but the program keeps track of individual tiles. Therefore, although the picture may look completely sorted, it may well not be.

When entering the name of a picture on another disk, remember to include either the disk name or DF0: in the filename, otherwise it will not be found. Also include any subdirectories needed to locate the file. If, for instance, you are using one of your own pictures done using DPaint, do not forget that DPaint stores its pictures in the lo-res directory. Hence to load a picture called "MyScene" you would enter "Df0:lo-res/MyScene" in response to the prompt.

After entering the filename (and swapping disks if necessary), you are asked for a difficulty level. Press a number from one to nine – return is not needed. The number is used to determine how many random moves are made by the program in shuffling the tiles. In fact, the number is eight times the level entered. This gives a good range from easy at level one to fiendish at level nine! If you really want it to be difficult, look away as the scrambling takes place. Although this is done quickly, you can usually follow at least one of the moves.

cont. on next page

continued from page 47

Picture loading can take some time, especially if the source file is compacted. This is done automatically by some programs to save disk space. The top left hand tile is marked with an outline and then the tiles are scrambled. The marked tile moves in any of the four cardinal directions, swapping with the corresponding tile (the GET and PUT statements made light work of this!) The

reverse direction is always barred when scrambling so that it does not simply unscramble itself again!

To move the marked tile, click with the left hand mouse button on the tile you want it swapped with, or use the mouse to "drag" the marked tile around. Clicking elsewhere has no effect. Play continues until the tiles are fully sorted and the picture is restored. You can always

escape by bringing up the BASIC menu bar and selecting stop from the RUN menu.

This is about all there is to the loading and running of this game. I hope you enjoy it and perhaps it will give a new lease of life to all those pictures you have lying around on disks but which you have not looked at for months. Now, back to trying to get 100% on level nine!

P.W.

```
REM - Sliding Picture Puzzle by Phil Wilkes 08/88
REM - LoadILBM by Carolyn Schepner CBM 04/86
REM - Requires exec, graphics and dos
REM - .bmaps (Use new ConvertFD)
```

Main:

```
RANDOMIZE TIMER
DIM check%(4,4)
DIM float%(1000),trans%(1000)
FOR xt=0 TO 4
  FOR yt=0 TO 4
    check%(xt,yt)=5*xt+yt
  NEXT yt
NEXT xt
```

```
PRINT "SLIDING BLOCK PICTURE PUZZLE"
PRINT
PRINT " This program loads and displays an IFF ILBM pic file"
PRINT "(Graphicraft, DPaint, Images) and uses it as the basis"
PRINT "for a Sliding Block Picture Puzzle."
PRINT
```

```
REM - Functions from dos.library
DECLARE FUNCTION xOpen% LIBRARY
DECLARE FUNCTION xRead% LIBRARY
DECLARE FUNCTION xWrite% LIBRARY
REM - xClose returns no value
```

```
REM - Functions from exec.library
DECLARE FUNCTION AllocMem%() LIBRARY
REM - FreeMem returns no value
```

```
PRINT:PRINT "Looking for bmaps ... ";
LIBRARY "dos.library"
LIBRARY "exec.library"
LIBRARY "graphics.library"
PRINT "found them."
PRINT:PRINT "ENTER FILESPEC : "
PRINT "( Remember to include LO-RES if Dpaint picture )"
PRINT
```

```
GetNames:
INPUT " IFF Picture filename";ILBMname$
IF (ILBMname$ = "") GOTO Mcleanup2
```

```
PRINT
PRINT "Enter difficulty level (1-9) : ";
level%=0
WHILE level%=0
  level%=VAL(INPUT$(1))
WEND
PRINT level%
level%=level%*8
```

```
REM - Load the IFF ILBM pic
loadError$ = ""
GOSUB LoadILBM
IF loadError$ (<) "" THEN GOTO Mcleanup
```

```
REM Main Program
xt=0:yt=0
LINE (0,0)-(59,35),,bf
LINE (0,0)-(59,35),0,b
GET (0,0)-(59,35),float%
```

```
REM Scramble Tiles
bd%=0
FOR n%=1 TO level%
  GOSUB scramble
NEXT
```

```
REM Main Game Loop
unsorted%=1
moves%=0
WHILE unsorted%
```

```
GOSUB getmouse
GOSUB movetile
moves%=moves%+1
GOSUB checksort
WEND
FOR delay%=1 TO 10000:NEXT
```

```
Mcleanup:
WINDOW CLOSE 2
SCREEN CLOSE 2
```

```
Mcleanup2:
LIBRARY CLOSE
IF loadError$ (<) "" THEN PRINT loadError$
IF saveError$ (<) "" THEN PRINT saveError$
```

```
CLS
PRINT "Puzzle completed in ";moves%;" moves."
PRINT "Efficiency factor is ";INT(level%*100/moves%);"%"
```

END

```
getmouse:
dt=0
WHILE dt=0
  WHILE MOUSE(0)=0
    WEND
    mx%=MOUSE(1)\60
    my%=MOUSE(2)\36
    IF mx%>4 THEN mx%=4
    IF my%>4 THEN my%=4
    IF mx%=xt AND my%=yt-1 THEN dt=1
    IF mx%=xt+1 AND my%=yt THEN dt=2
    IF mx%=xt AND my%=yt+1 THEN dt=3
    IF mx%=xt-1 AND my%=yt THEN dt=4
  WEND
  RETURN
```

```
scramble:
dt=0
WHILE dt=0
  dt=INT(RND*4)+1
  GOSUB checkmove
  IF dt=bd% THEN dt=0
WEND
bd%=(dt+1)MOD 4)+1
GOSUB movetile
RETURN
```

```
checkmove:
IF dt=1 AND yt=0 THEN dt=0
IF dt=2 AND xt=4 THEN dt=0
IF dt=3 AND yt=4 THEN dt=0
IF dt=4 AND xt=0 THEN dt=0
RETURN
```

```
movetile:
IF dt=1 THEN ntx=xt:nyt=yt-1
IF dt=2 THEN ntx=xt+1:nyt=yt
IF dt=3 THEN ntx=xt:nyt=yt+1
IF dt=4 THEN ntx=xt-1:nyt=yt
GET (60*ntx,36*nyt)-(60*ntx+59,36*nyt+35),trans%
PUT (60*xt,36*yt),trans%,PSET
PUT (60*ntx,36*nyt),float%,PSET
tt=check%(xt,yt)
check%(xt,yt)=check%(ntx,nyt)
check%(ntx,nyt)=tt
xt=ntx
yt=nyt
RETURN
checksort:
unsorted%=0
FOR dx%=0 TO 4
  FOR dy%=0 TO 4
    IF check%(dx,dy%)<5*dx+dy% THEN unsorted%=1
  NEXT dy%
NEXT dx%
RETURN
```


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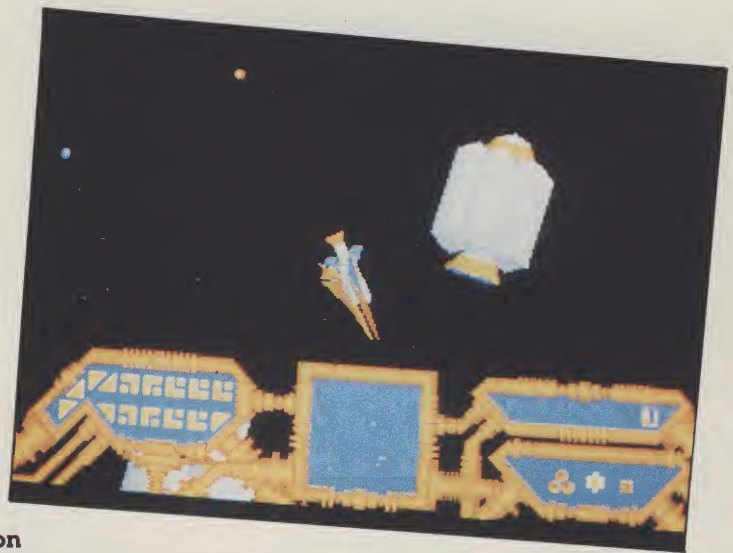
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WHIRLIGIG

Rainbird



When a game comes along boasting four billion sectors, more than a little scepticism creeps into my head (but that's nothing new!). There seems little point in dealing in such high numbers when there will obviously be little variety from the first to the four billionth. On the other hand, Mike Singleton, the man behind the game gained a large following with his giant Lords of Midnight adventures, so the return of the "giganti-game" may well repeat that success.

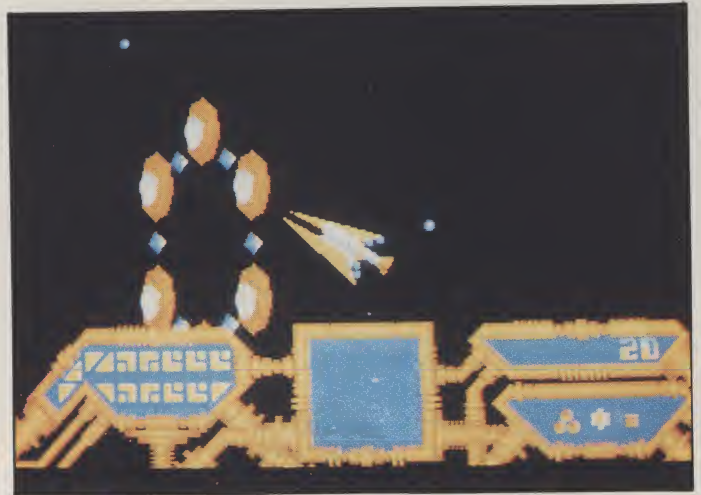
Your goal is to retrieve five "perfect solids" from around the four billion sectors or 'eigenspaces' as they are referred to in the game. ('eiga' means 'eyes' in German. Is there some significance in that?) Luckily, these perfect solids are found in the same eigenspaces every game, and their eigenspace numbers are given in the instructions. So, finding where they are is not your problem, reaching them is.

Starting in eigenspace one, you are given a map of the sector which shows up the first stargate. You are now made to wait 30 seconds, perhaps for the computer to generate the sector, but whatever the reason, it would be a lot better off without it. Once the program is ready you can check out the baddies you will meet in the sector, spinning round in 3D before you. Perfect solid number one is not far way in eigenspace six. Travelling up to the higher eigenspaces is not as time consuming as you may think; timegates can take you millions of sectors ahead (or back) in one step.

"Whirligig's graphics are strange. They are all drawn in solid 3D, but the game is played just as if it were 2D."

Whirligig's graphics are strange. They are all drawn in solid 3D, but the game is played just as if it were 2D. If that sounds confusing, imagine a version of Asteroids in which the objects rotate in all directions, and you will have some idea of how it moves. Around the eigenspaces are a number of aliens that are pretty sedate, though can

be very hard to avoid. They do not show up on the scanner at the bottom of the screen and give no warning before appearing right in your path. The control panel that houses the scanner can be toggled on or off to give better vision. The trouble with this is that without the control panel you find yourself getting hopelessly lost, and due to its excessive size it blocks out too much of the screen when turned on.



Some of the objects to be seen spinning around in space are impressively animated though a mite small. The sound effects and music do not come up to these standards; the effects being simplistic and the music annoying. More action or strategic elements are needed to give Whirligig real playability. Flying around looking at the aliens is pleasant for a while, but the uneventful gameplay and fiddly mouse control unfortunately spoil the great technical achievements that Whirligig certainly possesses.

T.H.

Graphics: 8
Sound: 5
Playability: 5
Value: 5
Price: £19.95

CAPONE

Actionwarre

Light guns have never really taken off as an alternative control method for computer games. Although they have been around since the days of the first TV games, their rare appearances have made little impact. Arcade goers will be familiar with Operation Wolf which must be the best use yet made of a light gun, reaching a level of realism just not possible with a standard joystick. No doubt spurred on by Operation Wolf's success, Actionware have developed Capone with a light gun control option that tests your aim not your joystick handling.



The game opens looking onto the front of a parade of shops. Windows are smashed one by one before the gangsters pop like ducks in a shooting gallery. Slowly they rise into sight, wait a few seconds then open fire with machine guns. Shop windows, market stalls and other scenery adds interest to the backgrounds of streets and houses. It would have been nice to have been able to shoot some of these extras, the silhouettes seen through the barber's shop window are just dying to be gunned down! Each shot is signified by a realistic sound effect and a hit scored on an enemy with a high pitched ricochet.

'Occasionally you'll find a machine gun sitting on the pavement. Once you collect it you can get down to some real gangster blasting'

Soon the screen starts to scroll very slowly to left. More gangsters walk along the pavement dropping sticks of dynamite after being shot and others peep over the tops of fences. Occasionally you'll find a machine gun sitting on the pavement. Once you collect it you can get down to some real gangster blasting. Instead of taking single shots, waiting for the gun to reload, a whole stream of bullets can be sprayed all over the screen. Unfortunately, its life is short and before long you are back to the usual weapon.



Further into the game new scenes are introduced, such as the part set in a dynamite warehouse where a stray shot threatens to blow up the whole building! Capone's simple gameplay consists of aiming at the baddies and shooting them, and though features such as the machine gun and the continue play option add a bit of variety, it must be said that the game is repetitive.

The gun is uses is a modified Atari light gun, priced at \$49 in the U.S. No UK price has been fixed for the game or the gun. I had a lot of fun with Capone, though I suspect the price of the gun together with the software could out-weigh the lifespan of the game. But undoubtedly it brings a new dimension to Amiga games play and will be a very popular choice for the Christmas period.

T.H.



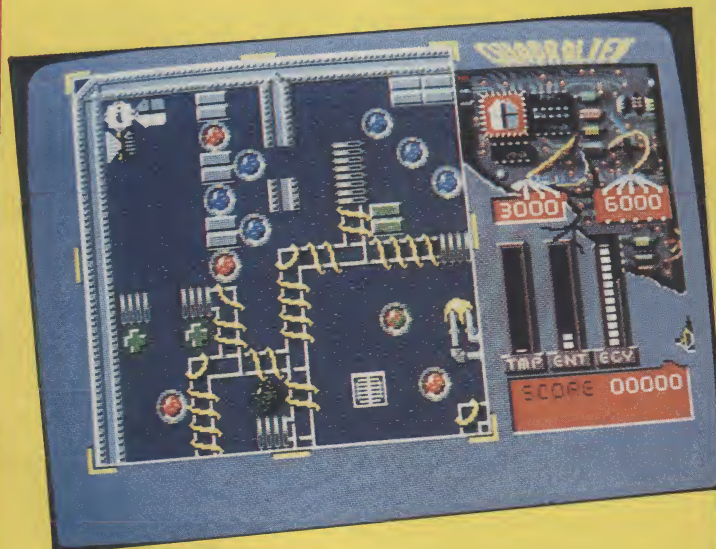
Graphics: 8
Sound: 7
Playability: 7
Value: 7
Price: £24.95

QUADRALIEN

Logotron

Things are heating up in Astra, humanity's largest fission reactor. Orbiting Jupiter, Astra is maintained by a set of remote controlled robots. Radioactivity has started to overrun the reactor, putting it in danger of a meltdown. With the use of the robots you have been given the task of taming the reactor.

Six droids are at your disposal for the mission, each with varying qualities and weakness. Level one of the reactor is split into six chambers of progressive complexity. Once you have chosen which two droids to take in, the selected chamber can be used to move the robots around the maze of multi-coloured reactor components.

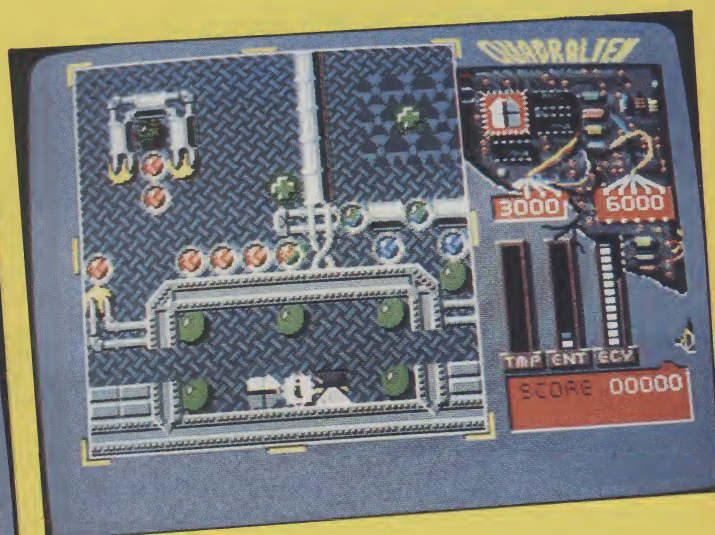


A variety of objects glow green, these are the all important radioactive parts. Disposal of these constitutes most of the game. Absorbing them is one way, shooting them is another, though some are immune to shots and can only be absorbed. When this is reached, an information point needs to be reached where you can scrub the droid clean. From these info points you can also recharge the robots, switch chambers and also a number of status screens can be called up. If the temperature starts to get out of hand, water barrels can be pushed down the utility chutes to cool it down a little.

'If the temperature starts to get out of hand, water barrels can be pushed down the utility chutes to cool it down a little'

Quadralien would like you to think it was some incredibly involving form of puzzle. I spent a good while getting the hang of the game in the hope that I would find just that. To tell you the truth, from start to finish it bored me silly! There is little to puzzle over (in the early stages at least) and just moving around a maze,

absorbing and shooting static blocks is simply not entertaining. For such a game, the graphics have been neatly and colourfully drawn but are let down by the wobbly scrolling. David Whittaker's music could have created quite a good atmospheric if the game backed it up.



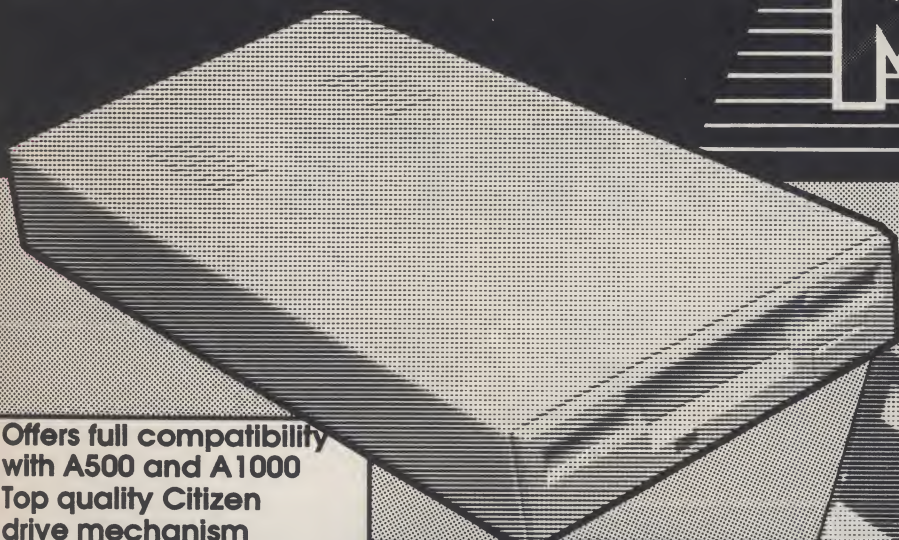
Puzzle games needn't be as uneventful as this. A computer game is meant to entertain, not bore. For me it was more boring than entertaining, though maze/puzzle gamers may find its shortcomings easier to overcome.

T.H.

Graphics: 7
Sound: 7
Playability: 4
Value: 5
Price: £19.95

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Amiga Answers

More Amiga Answeres from Yuri Large, the Amiga User Group's Technical Whizz-Kid.

Dear AUI,

I am pleased to note how you deal with so many letters and wondered if I might also have a shot at writing to you in the hope of trying to sort out some of the problems which I have come across.

(1) I recently bought a 1MB expansion through the post. When fitted it gives me a problem with Textcraft in that the pointer ceases to exist. Also, even though I set the clock up on the Workbench Preferences, every time I switch the machine on I have to reset the time again because it always reverts to the time and date on the original Preferences.

(2) I believe that the hi-res option in Dpaint can only be used from the Preferences when a 1MB expansion is fitted, but now that I have got 1MB I can no longer find the resolution options! Can you please advise?

(3) In your issue May 1988 which was the first copy that I set eyes on, page 21, I started to follow the program by inserting WB and breaking into the CLI. My problems began at paragraph 4, after breaking into the CLI I typed SYSTEM/DISKCOPY FROM DFO: (I don't have an external drive), I was then prompted for NAME and I entered Workbench, the reply was 'Command unknown', so I tried 'copy Workbench' and it just displayed the message 'bad argument', so I tried 'duplicate Workbench' and was greeted with 'unknown command Workbench'!

(4) I purchased one of 'Computel's Amiga Application books in the hope that it might teach me a bit about basic programming but unfortunately like so many of these type of things it is not quite as simple as they lead the reader to believe. Now that you have seen my state of ignorance could you recommend the right books to get me on the right road to learning the Amiga with a view to programming in Basic?

I would be extremely grateful for some

answers without which this machine is looking a bit boring which I feel is not in fact the case but information is so difficult to come by down here in sunny Cornwall. Yours faithfully,

Mr W T Boynton-Quinion.

Dear Mr Boynton-Quinion,

(1) As discussed last month some of the older Amiga programs have problems running with expansion memory attached. Textcraft is one of these programs. There are two ways around the problem. The first is to use NoFastMem, which appears in the system drawer of your workbench disk. This program is a software switch for any fast memory attached to the Amiga. That is, if you run NoFastMem, your Amiga will cease to recognise the expansion memory. The drawback with this, is that you cannot use your expanded memory while NoFastMem is in operation. It can be switched back on again by re-selecting NoFastMem. However, once you have done this, you will once again experience the problems you have mentioned with some programs.

The second method, which works very well with TextCraft, is to use a program on Fish Disk 36 called FixHunk. This program can be used on programs that misbehave with fast memory to enable them to run properly. It is run from the CLI like this: "FIXHUNK TEXTCRAFT". When this is done, fixhunk reads through the program (in this case TextCraft) and changes it in order to allow the program to run using the fast memory. With your adjusted version of TextCraft you can then run quite happily without removing your memory or losing your pointer.

The A501 manual is not very clear on the method to use its battery-backed clock. In order to use it you must do two things. Firstly you must set the battery-

backed clock's time and then you must insert a line in your startup-sequence to call it up when you boot up. To set the time, you must set the system time as usual, that is use Preferences or the CLI "DATE" command, then you must save it to the battery-backed clock using the CLI "SETCLOCK" command. To save the time to the battery-backed clock type in: "SETCLOCK OPT SAVE". Then in order for this time to be called up each time you boot, you must insert the line "SETCLOCK OPT LOAD" in the start-up sequence of any Workbench disk you use to boot up with.

(2) The first version of DPaint, as supplied with the A500, can be used in either lo-res, med-res or hi-res. By default when run Dpaint starts in lo-res. To obtain med-res type: "DPAINT MED-RES" and to use hi-res type (you guessed it!): "DPAINT HI-RES".

(3) When using the CLI "DISKCOPY" command you must specify both the source drive and the destination drive. So for a one drive system you would type: "SYSTEM/DISKCOPY FROM DF0; TO DF0;"

(4) There are now several very good books available on Amiga BASIC. However, if you are a beginner there are these books I would recommend. The first two are very gentle and even the most confused of novices should be able to follow them. They are both published by Compute! and are called "Elementary Amiga BASIC" and "Kids and the Amiga". For the more confident I would recommend Abacus Software's "Amiga BASIC Inside and Out", which is a more complete guide to the language.

Dear AUI,

In the near future I will be one of many thousands upgrading to the Amiga 500, and with many hours of research realise the sound and graphical capabilities of

continued on page 56

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continued from page 54

this machine, especially animation and background sceneries, are very powerful.

Firstly, I would like to know which are the best animation and background/art software packages for beginners like myself.

Secondly, which are the best pieces of software for creating sound effects and music on the A500?

Thirdly, how is it possible to run such programs simultaneously so they can be used together, or in other words can they be loaded into the A500's memory and accessed at random as one main animation/art/sound file?

Yours sincerely,

Mr D S J Williams.

Dear Mr Williams,

After a lean first year the Amiga has come into its own on the software front, especially on the graphics and animation front. To start with, however, I would recommend DPaint and Fantavision as a good starting point for a budding Amiga artist/ animator. On the music front there is also a great choice. I would recommend Sonix as a good all round package. Not only does it give you full composing power but it offers a good synthesizer for you to play around with the Amiga's amazing sound capabilities.

Programs on the Amiga can run at the same time due to its multi-tasking capabilities. This was achieved by the clever design of the Amiga's hardware and software and is a unique feature in the personal computer market. What it basically entails is the central processor farming out tasks to its co-processors. The hardware takes care of actually running the tasks and the software manages the tasks so they do not interfere with each other. The only limitation on this is memory, i.e. you can multi-task as many programs as memory will allow. Some programs, however, will not multi-task. This is either due to bad programming or due to a conscious decision by the software designer. For instance, Pro Video, which is a professional video-tilting package, will not allow multi-tasking. This decision was taken by the programmers in order to take full advantage of the Amiga's chip RAM (see last month's Amiga Answers).

Dear AUI,

I have been a reader of your mag for quite a while now so I was wondering if you could help me with this problem. I have now owned my Amiga for six months and I want to start programming. My problem is that I do not know if I should use C or Assembler. Please could you tell me which is the easiest to learn and if any of the above have any limitations.

Yours sincerely,

Robert Taylor.

Dear Robert,

In my opinion you should start with Amiga BASIC. The choice between Assembler and C is a very personal decision and if you have never programmed before it would be a good idea to learn about some of the factors which will effect you. Amiga BASIC is a good structured language, which will get you on the way and it is free! Then when you are more confident you can make your decision based on what you have already learnt.

Briefly though, Assembler's main advantages are that it is fast and the programs produced with it are usually quite small. C's main advantages are that it is highly portable, it links in well with the Amiga's operating system and it is structured like a high-level language while giving you all the low-level control of Assembler.

Dear AUI,

I've got a few questions to ask. I hope you will answer them, I would be very grateful.

(1) In the July 1988 issue of AUI, Gary Tinsley asked if there was any way to record the Amiga screen/graphics in colour on to his VCR without any expensive hardware and you replied that the A520 modulator would do the trick. Now, I've got an A520, but in the manual, it doesn't say how to connect a VCR to the A520, TV etc., so could you tell me the connections for this operation?

(2) When I typed in your Fractal landscapes + Fractal corrections listings, the A500 couldn't find the libraries on the Extras disk, so it asked for the WB 1.2 (original disk) and it still couldn't find the libraries, how come? Could you help me find the libraries.

(3) On your OKIMATE 20 colour printer review in the April issue, the reviewer said he'd used the PD program FILEZAP to cure the white gaps in prints (from the control command "1B3324" to "1B3322") so that the line feed 36/216 of an inch was reduced to 34/216 of an inch. How exactly did he do this? (Using what commands?) and in which PD disk is FILEZAP?

Yours askingly,

Anjum Khan.

Dear Anjum,

(1) The connection required is from the composite video out on the TV modulator to the composite video in on your VCR. In most cases the lead you will need is a phono jack.

(2) The libraries used by Amiga BASIC using version 1.2 of the operating system are created from the files in the FD1.2 drawer on the Extras disk. To convert them for use with Amiga BASIC use the ConvertFD program in the BASICDemos drawer. Once you have the appropriate libraries then place them in the same

drawer as the program that you want to run, and away you go.

(3) The latest version of FILEZAP is called NEWZAP and appears on Fish Disk 58. NewZap is a program that is used to take an in depth look at a file. It allows you to scan through a file and edit any of the values in it. In order to do this with the Okimate 20 driver, copy NewZap into the c directory on your workbench disk, then type in "NEWZAP devs:pitrners/okimate 20". Use NewZap's search function to find the hex "1B3324" and then edit it to "1B3322".

Dear AUI,

I have been using Scribble! as my word processor for some time and have a couple of questions you may be able to help with. When I run DictAdd I am asked to Enter drive/path for work File (:T/ is default). If I try to enter :T/ the program responds with "can't open new dictionary: T/Dictionary.\$\$\$".

What is my correct response? Should I copy my dictionaries onto the data disk for more room? I am working with "the Works" package which seems very full. Thank you for your help.

Yours sincerely,

Steve Klein.

Dear Steve,

The problem you are encountering is, as you mentioned, due to lack of disk space on "the Works" disk. You can get around it by either copying your dictionaries to a data disk, or and I think more sensibly by using the ram disk to run DictAdd. Just type in the path RAM: when prompted. The problems occur because DictAdd creates a temporary file in the process of adding your UserDict to the main dictionary. The temporary file is very big and therefore needs a lot of disk space.

Dear AUI,

In answering Niall Caldwell's letter last issue (July) you wrote "a modem operating at 300 Baud is transferring 300 bits of data per second". Though this may be the case, the Baud is not necessarily synonymous with the number of bits per second as the bit rate is determined not only by the Baud rate, i.e. the speed of the carrier signal, but also by the method in which the data has been encoded onto the carrier.

Yours faithfully,

Rodney Culling.

Dear Rodney,

You are indeed correct. The actual definition of the Baud is a measure of the number of times per second a signal in a communications channel varies, or makes a transition between states. One Baud is one such change. For instance, some 1200 bit per second modems use a modulation technique that sends two bits per baud, so they really operate at 600 Baud. Complicated, eh?

SARCOPHASER

Players

Although the 8-bit games market is bursting at the seams with R-Type-inspired horizontal scrolling shoot 'em ups, Amiga zappers have been starved of this popular format. Perhaps Sarcophaser will remedy the situation. Sarcophaser was programmed by Rainbow Arts, the creators of Katakis, a superb example it may seem, their Amiga game is way behind their 64 masterpiece in every aspect.

A small silver ship is under your control throughout the levels. A rapid-fire single laser is the basic armoury, upgraded by collecting icons left by deceased aliens. Speed, extra shots, rear lasers and a smart bomb are all available by saving up varying amounts of icons. The best of all is the "whizz", a gadget that circles the ship letting off even more laser bolts.

'Background graphics are mainly either traditional metallic scenes or made up of strangled plant-life.'

Aliens appear in the usual style, weaving across the screen one after the other. Most are small blobs with nothing much to distinguish one from another. Clearly little imagination has gone into the design of the graphics which are reminiscent of many games from the past, and not very well drawn at that. Background



nothing particularly interesting or exciting to keep you at it. At the price it is fairly cheap, though whether it delivers a full fifteen pound's worth of entertainment is debatable.

T.H.

graphics are mainly either traditional metallic scenes or made up of trangled plant-life. Unfortunately, these repeat themselves too often and lack a polished and professional look. At the end of the short levels are large motherships which explode extremely weakly.

No in-game soundtrack has been included, just a few good effects. Everything in the game (apart from the odd mothership) is very small. The screen has been shrunk and all the sprites are a bit on the weedy side. There are no gaping holes in the gameplay, but then again there is

Graphics: 5
Sound: 7
Playability: 6
Value: 7
Price: £14.95

CORRUPTION

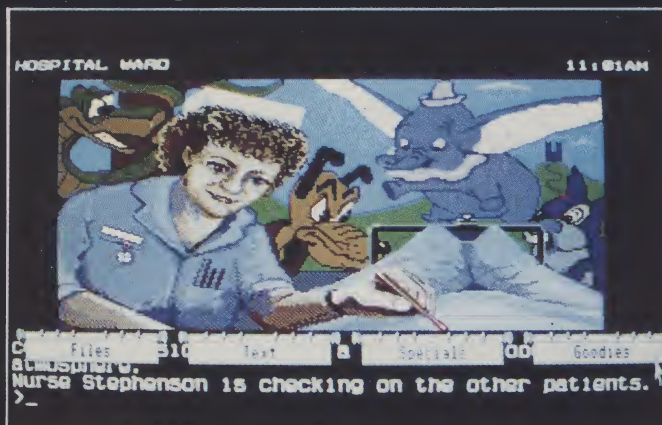
Rainbird

What is it that turns a city slicker into a sinister villain? Andy Moss, our intrepid adventurer, goes in search of corruption.

The City of London. Deals and chicanery. Porsches and profit, millions gained and millions lost, insider and outsider dealing. And you. This is the background to Magnetic Scrolls latest release *Corruption*, which marks a complete change of direction for the London based adventure house. Up to now we have had magic and wizards and princesses and pawns (poetic license) but an up to date Yuppie thriller like *Corruption* is quite a different story. They are taking a bit of a gamble going this route, as for one thing it will appeal to a more limited market, (although one could argue that City slickers who have hereto not tried adventure games would undoubtedly buy this) and by leaning heavily on character conversation and interaction to solve the puzzles instead of just treasure seeking will no doubt disappoint the fantasy style customer. Having said that *Corruption* is based around a meaty storyline and like Infocom's *DEADLINE* or *SUSPECT*, you will get a great deal of enjoyment from cracking a mystery in this fashion. What about the basic plot? Well you play the part of Derek Rogers' nes partner in the Rogers and Rogers firm of stockbrokers. The adventure opens on your first day, when your partner David shows you to your new office, that goes with your new BMW and new secretary. Pleasantries are exchanged all round and you are left free to explore the company. Everything seems quite professional and straightforward until, after visiting the dealing room, you are told to get a message to David about officers from the Serious Fraud Squad who would like to ask him a few questions. All of a sudden things do not seem so rosy. Then you just happen to overhear a conversation between David and Bill Hughes, the company lawyer, (listening outside doors has certain advantages) regarding an affidavit that David feels he will need soon. You wonder why. Things are starting to smell rotten and after a short tour of the premises you get arrested! Something about insider dealing and evidence of shares in Scott Electronics, an affidavit and a cassette tape.

The only thing to do is restart, go back over the parts you covered and see what you missed. Gradually things start to happen which keep the Law at bay and you begin to piece together just what is going on. There is a great deal of character questioning in *Corruption*, and Mag Scrolls have gotten around this by simplifying the process down to ASK XXX ABOUT XXX or TEL XXX ABOUT XXX. The answers you get will give you more information to ask other people about. Most of the major puzzle solving scenes are time based and will always happen at the same time each game, it is up to you to note what happens when.

There are no obvious changes in the Scrolls system, the graphic pull down portraits are there, although I found them no where near as pretty as Scrolls other releases. The annoying door/key/open routine is still there, bugging the hell out of me. I get very annoyed when I am carrying keys and have to go through a locked door, the program insists on the usual, "which key, the blue, red, rusty, gold, wooden or rubber". You type in "rusty" only to be hit with "which door, red, yellow, etc." Why can't you, if you are carrying the right tools open the door automatically eh?



Those moans aside, the packaging is very professionally designed, with filofax style manual, which gives you clues, along with some very good restaurants, a casino chip and an audio cassette, which you need to play at certain places in the game. A cypher clue section is also included and for those of you who are new to sleuthing type adventures you will need it!

Corruption is a hit, make no mistake, it is not large in a location sense, forget exploring hundreds of rooms here, it relies on the characters and timing for all the deviousness. Easy it is not but all the puzzles are logical and you do not need to have a working knowledge of the Financial Times to play. Just a certain paranoia that you will do it to them before they do it to you!

A.M.

Rating: 10/10 Price: £24.95

Bionic Commandos ^{Go!}

How many platform games can you think of in which the player's character has no ability to jump? Not many I should think. Bionic Commandos is one, replacing the usual springy legs with an amazing robotic arm. The original Capcom coin-op never really made it big; I only ever saw the machine a couple of times. Now Go! have converted it to the Amiga it has a second chance to gain the popularity it fully deserves.

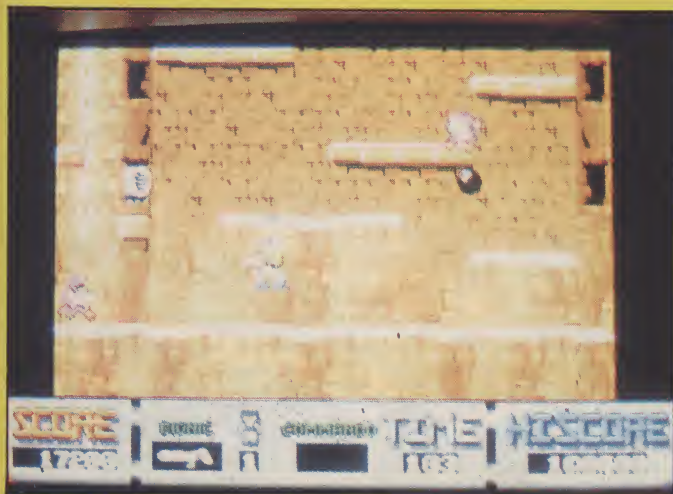
A semi-human fighting force known as the Bionic Commandos is the last hope in the battle to stop the enemy launching its awesome Doomsday Missile. Parachuting into the forest surrounding the enemy base you set out with a full set of six lives. A couple of pink-suited soldiers immediately drop in from the top of the screen, aiming their guns with surprising precision. Shooting your bionic arm straight up hooks the end onto the overhanging branch. Retracting the arm pulls you upward and onto the tree. Just to the right, a fat soldier sleeps cross-legged until you approach him, and as he leaps into action he takes a number of hits to destroy. A small annoyance is the way he always tumbles to the left after

poor scrolling ability, a problem which has been overcome with a strange kind of "spasm" scrolling technique. This means that as you approach the edge of the screen it whizzes across to keep you in the centre. It leads to an element of the gameplay not found in the arcade original; often the screen has to be pushed by extending the arm to bring essential platforms into view. Fortunately this becomes just another part of the gameplay and is easy to get used to.

Predictably, this technique has also been used for the Amiga version. There is also the same bug that continually scrolls the screen to the left, (though this can be used to your advantage). It is a shame that the Amiga game has had to inherit the ST's faults, but maybe soon we will see UK companies using the Commodore machine to the full.

Played on an Amiga 1000 the game runs at a suitably fast pace, though on our 2000 it was very much slower. It might be a good idea to see it running on your particular model beforehand if possible.

Some great tunes play throughout the game, keeping a jolly atmosphere on the whole thing. Even so, some

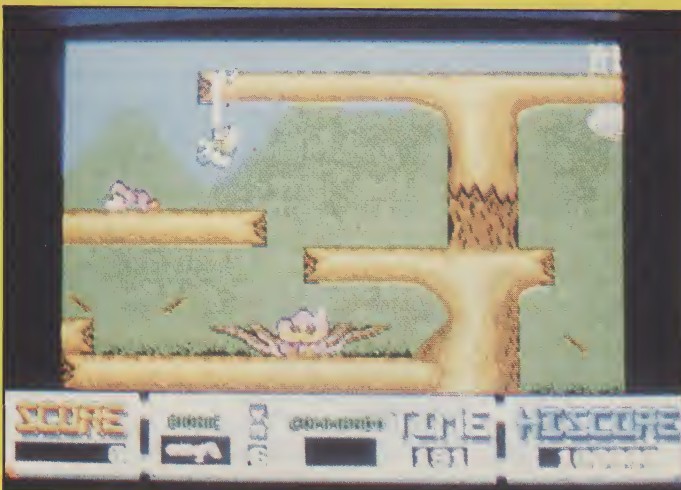


being shot. This is fine if you are to his right, but if attacking from the opposite side he rolls right into you.

Uses of the arm do not stop at mounting platforms. Extending it up and to one side will allow you to swing across gaps, and most enemies can be stunned with a sharp blow from the arm. Small parachutes float in carrying more powerful guns and a device to speed up your monstrous arm. The guns are a welcome addition though the arm up-grade makes little noticeable difference. Nearing the top of the first of five levels, tubby birds chase you to the entrance of level two.

Here the graphics improve from the basic trees of level one. Excellently shaded turrets of the castle are patrolled by more soldiers, cannons and crate-lobbing giants. With each new scene the graphics hold some rewarding surprises such as the enormous animated robots and cute little characters to be found all over the place. Security doors can be opened by blowing up the electronic keyholes, whilst helicopters bomb you and metallic walkers stomp you to death.

As with all of US Gold's/Go!'s coin-op conversions, Bionic Commandos has been developed on the ST and slightly modified for the Amiga. The ST is known for its



sound effects would have been a welcome addition. One point that upset me was that the Amiga version is priced at a fiver more than the almost identical ST game. I don't understand why most software houses follow this practise.

Despite its quirks, Bionic Commandos is really excellent fun. It can be frustrating at first but stick at it and you will be glad you did. For it possesses the quality of first rate gameplay that will bring you back to it again and again.

T.H.

Graphics: 8
Sound: 7
Playability: 7
Value: 8
Price: £24.99

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AMIGA PROGRAMMING

AN AMIGA 'TEST BED' PROGRAM

To learn C is one thing, to get a C program up and running on an Amiga is another. Paul Andreas Overaa has created a test bed program that will take care of the initial tricky stuff and let you try out a whole range of routines.

Last month we looked at a few of the line drawing routines available from the Amiga system's graphics library. These types of routines are usually quite easy to understand and, with the right environment, equally easy to use.

Unfortunately with the Amiga you can not just type a couple of lines of code and see the machine do something. Working with C you have to create your source code, compile it and then link the 'start up' code etc. If you are new to C and the Amiga the problems of 'experimenting' with the various routines described in the manuals are intensified. It is necessary to understand the protocols for handling the Amiga's resources and you have to get all this preliminary code right before you can even start to experiment with the vast number of routines documented in the manuals. There is no doubt that this produces a stumbling block for a lot of people and it is one that cannot be avoided (unless that is . . . you decide to give up!).

This month we are going to look at a C program which provides a 'Test Bed' environment. It provides a framework that should enable you to experiment with system functions, e.g. some of the graphics routines mentioned last month, just by adding a few lines of code to the skeleton program.

The program described handles the opening of the libraries, a custom screen and an associated full screen size borderless window. These preliminary chores are performed using a set of 'resource handler' routines based on the ideas discussed in the March issue of AUI. This month's program gives you the first 'runable' example of such a resource handler in use.

Essentially the program does just three things: Firstly it opens the necessary resources, secondly it performs your piece of 'test code'. Finally, when you click on the left mouse button, the resources being utilised are handed back and the program terminated.

The source code layout of the skeleton program has been kept as simple as possible, here is the overall plan . . .

CONSTANTS: A few 'define' statements which avoid having 'magic numbers' embedded within the program.

INCLUDES: Identify the system header files that are required.

STRUCTURES: We set up the NewScreen and NewWindow structures needed for a 640x256 pixel, 4 bitplane display.

RESOURCE HEADER: See March issue of AUI for details.

GLOBAL VARIABLES: See the code for their definitions.

MAIN BLOCK: This block starts by calling the routine begin block() to set up the screen/window arrangement. You put your piece of 'test code' into the source where I have indicated. Following your code comes a Wait() function and a call to the routine which terminates the program.

RESOURCE HANDLER: See March issue of AUI for details.

[Note: The skeleton program defines a global RastPort pointer variable called 'global rastport p' and collects the necessary address data from the screen that Intuition sets up. By the time the screen is open the pointer is initialized and ready for you to use].

In use all you need to do to the skeleton code is add the extra piece of test code to the source, compile, link and run it. To finish with let us take a nice easy example . . . The graphics function RectFill (rp, xmin, xmax, ymax) will create a rectangle whose colour is that of the foreground or 'A' pen. The first parameter is a pointer to the screen's rastport. The other four parameters represent the co-ordinates of the rectangle. To try the RectFill() routine all you need to do is add just two lines of code to the skeleton source . . .

```
SetAPen (global_rastport_p,2);
RectFill (global_rastport_p,100,50,200,100);
```

If these two code lines are added to the program and the modified source compiled and linked, you will be able to see RectFill() in action. Next month we are going to be a bit more ambitious and experiment with more involved test code that can be added to the skeleton source.

P.A.O.

cont. on next page

continued from page 61

```

/* ***** GENERAL CONSTANT DEFINITION STATEMENTS ***** */

#define INTUITION_VERSION 0 /* Zero's mean ANY library versions */
#define GRAPHICS_VERSION 0
#define SCREENPLANES 4 /* Here we prepare to set up a high */
#define SCREENWIDTH 640 /* resolution Mon-Interlaced screen */
#define SCREENHEIGHT 256 /* with 256 lines and 4 bitplanes. */

/* ***** INCLUDE FILES ***** */

#include <exec/types.h>
#include <intuition/intuition.h>

/* ***** STRUCTURES FOR SCREEN AND WINDOW ***** */

struct BitMap BitMap= {0};

struct NewScreen NewScreen = {
0,0, /* top left */
SCREENWIDTH,SCREENHEIGHT, /* width and height */
SCREENPLANES, /* depth, i.e. the number of bitplanes */
0,0, /* detail and block pens */
HIMRES, /* ViewModes */
CUSTOMSCREEN+CUSTOMBITMAP, /* Setting up custom screen with our own bitmap */
NULL, /* Accept Default Font */
NULL, /* No Title */
NULL, /* No Gadgets */
&BitMap, /* Pointer to the bitmap structure declared above */
};

struct NewWindow NewWindow = {
0,0, /* window XY origin relative to TopLeft of screen */
SCREENWIDTH,SCREENHEIGHT, /* window width and height */
-1,-1, /* detail and block pens same as screen */
MOUSEBUTTONS, /* IDCMP flags */
SMART_REFRESH+BORDERLESS, /* other window flags */
NULL, /* first gadget in gadget list */
NULL, /* custom CHECKMARK imagery */
NULL, /* window title */
NULL, /* custom screen - resource handler will set this at run-time */
NULL, /* custom bitmap */
SCREENWIDTH,SCREENHEIGHT, /* minimum width and height */
SCREENWIDTH,SCREENHEIGHT, /* maximum width and height */
CUSTOMSCREEN /* destination screen type */
};

/* ***** AMIGA RESOURCE "FUNCTION NUMBERS" ***** */

#define OPEN_INTUITION_LIBRARY 1
#define OPEN_GRAPHICS_LIBRARY 2
#define RASTER_ALLOCATION 3
#define OPEN_CUSTOM_SCREEN 4
#define OPEN_WINDOW 5

LONG resource_vector[6] = {5, /* count of operation labels to follow */

OPEN_INTUITION_LIBRARY,
OPEN_GRAPHICS_LIBRARY,
RASTER_ALLOCATION,
OPEN_CUSTOM_SCREEN,
OPEN_WINDOW
};

struct IntuitionBase *IntuitionBase;
struct GfxBase *GfxBase;
struct Screen *global_screen_p;
struct Window *global_window_p;
struct RastPort *global_rastport_p;
struct ViewPort *global_viewport_p;

main()
{
BOOL allocate_resource(),begin_block();
void end_block();

if (begin_block()==TRUE) exit(FALSE); /* grab required resources or quit */

/* _____ */

/* This is where you put the test code stuff */

/* e.g. THIS MONTH'S EXAMPLE IS */

SetAPen(global_rastport_p,2);
RectFill(global_rastport_p,100,50,200,100);

```

```

/* _____ */

Wait(1<<(global_window_p->UserPort->mp_SigBit)); /* ANY message will end all */

end_block(); exit(TRUE); /* give back resources and quit */

}

/* ===== */
/* The following routines handle all the resources needed. The ideas were */
/* explained in detail in the March 88 issue of Amiga User International. */
/* _____ */

BOOL begin_block()
{
LONG i,j; BOOL allocate_resource(),error_flag=FALSE,void deallocate_resource();

for (i=1;i<resource_vector[0];i++)

{ error_flag=allocate_resource(resource_vector[i]);

if (error_flag==TRUE)

{ printf("Error %d\n",error_flag,"error during allocation at level ",i);

for (j=i-1;j>0;j--){deallocate_resource(resource_vector[j]);}

i=resource_vector[0]+1; /* force exit from 'i' loop */

}

}

return(error_flag);

}

/* _____ */

void end_block()
{
LONG i;

for(i=resource_vector[0];i>0;i--){deallocate_resource(resource_vector[i]);}

}

/* _____ */

BOOL allocate_resource(function_number)

LONG function_number;
{
LONG i,j; BOOL error_flag=FALSE;

switch (function_number) {

case OPEN_INTUITION_LIBRARY:

if((IntuitionBase=(struct IntuitionBase *)
OpenLibrary("intuition.library",INTUITION_VERSION))==NULL)
{error_flag=TRUE;}
break;

case OPEN_GRAPHICS_LIBRARY:

if((GfxBase=(struct GfxBase *)
OpenLibrary("graphics.library",GRAPHICS_VERSION))==NULL)
{error_flag=TRUE;}
break;

case RASTER_ALLOCATION:

InitBitMap(&BitMap,SCREENPLANES,SCREENWIDTH,SCREENHEIGHT);

for (i=0;i<SCREENPLANES;i++)
{
if ((BitMap.Planes[i]==(PLANEPTH)
AllocRaster(SCREENWIDTH,SCREENHEIGHT))==NULL)

{
for(j=i-1;j>0;j--){FreeRaster(BitMap.Planes[j],SCREENWIDTH,SCREENHEIGHT);}
i=SCREENPLANES;error_flag=TRUE;
}
}
}
}

```

continued on page 64

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continued from page 62

```

        }

        break;

    case OPEN_CUSTOM_SCREEN:

        if((global_screen_p=(struct Screen *)OpenScreen(&NewScreen))==NULL)
            {error_flag=TRUE;}
        else {
            global_rastport_p=&global_screen_p->RastPort;
            global_viewport_p=&global_screen_p->ViewPort;
        }
        break;

    case OPEN_WINDOW:

        NewWindow.Screen=global_screen_p;
        if((global_window_p=(struct Window *)OpenWindow(&NewWindow))==NULL)
            {error_flag=TRUE;}
        break;

    default: printf("allocation failure: unrecognized case \n");
            error_flag=TRUE; break;
        }

return(error_flag);
}

/*
void deallocate_resource(function_number)
LONG function_number;
{
    LONG i;
    switch (function_number) {
        case OPEN_INTUITION_LIBRARY: CloseLibrary(IntuitionBase); break;
        case OPEN_GRAPHICS_LIBRARY: CloseLibrary(GfxBase); break;
        case RASTER_ALLOCATION:
            for (i=0;i<SCREENPLANES;i++)
                {FreeRaster(BitMap.Planes[i],SCREENWIDTH,
                SCREENHEIGHT);}
            break;
        case OPEN_CUSTOM_SCREEN: CloseScreen(global_screen_p); break;
        case OPEN_WINDOW: CloseWindow(global_window_p); break;
        default: printf("deallocation failure: unrecognized case \n");
                break;
    }
}

/* ===== */

```


MONEY MENTOR

Look after the pennies and the pounds look after themselves – Money Mentor looks set to do just that. John Walker checks it out.

Money may be the root of all evil but it also the source of some very fancy programming. Money Mentor, a personal financial system for the Amiga from Sedona Software is one of the best designed programs I have seen. It almost makes budgeting a pleasure.

I have always been rather like W.C. Fields when it comes to managing money. He used to open accounts at dozens of banks and then forget which ones he had put his money in, mainly because he used lots of phoney names such as Mahatma Kane Jeeves or Otis J. Cribblecoblis.

While I do not aspire to such heights, I can never quite remember what I did with my money – or where it has gone. Money Mentor will not only keep track of such things. It will also – which I found terrifying – flash up graphs and charts showing the difference between your real expenditure and the amount you had budgeted to spend.

It will even detail those areas in which you have overspent the most. It is rather like having Chancellor of the Exchequer Nigel Lawson sitting inside your Amiga.

What makes using the program a pleasure – in so far as such a painful business as finance can be – is a device it calls 'Smart Scrolls'.

This is a sort of scrolling menu from which you can enter items into the system by pressing a key or clicking on the mouse. As a result you have to enter details of regular payments only once.

For example, when you are keeping track of a hire purchase payment, the next time you come to pay it, Smart Scrolls will recall all the details of the previous payment so that you can enter them automatically.

If some items have changed, you can edit the new entry with no trouble. Sedona says that Smart Scrolls can save 70 per cent of the typing an entry would

normally require. I reckon that is an accurate assessment.

A Smart Scroll consists of six lines of information – a blue action label at the top, a grey line where you can type in new information and a black line which usually contains the next action or information you require.

You can scroll the information in the six lines with the cursor keys, or click on the mouse when it is pointing at the correct line.

You can also search a long scroll by typing the first number or letter of the item you need – or several letters if there is more than one beginning with the same letter. The scroll will be re-aligned with the item you want in the black action line.

Values can be copied or repeated from one month to another to save work when making entries. Moving between one part of the program and another is done by going to a menu page and either clicking with the mouse on the item you want, or pressing one of the Amiga's function keys.

From the main menu page there are three levels of sub-menus. They are set out in a logical fashion – the third level generates various kinds of reports, for instance – and are not difficult to understand.

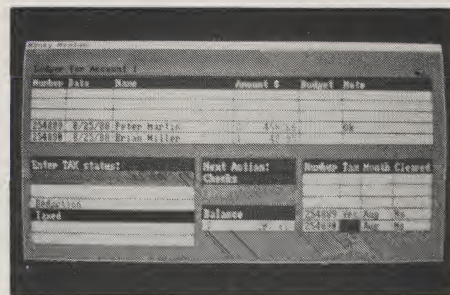
You can manage up to 30 different accounts with the program, to keep track of such things as your cheques, cash, savings, credit cards and so on. You can also set up 200 categories for budgets – up to half of that number covering income and the other half expenditure.

Money Mentor can deal with the fact that some transactions involve more than one account – payment on your credit card account will involve removing money from your bank account, for instance. It uses a Split Transaction, which simply requires you to indicate the two accounts involved as you enter the trans-

action in one of them. The program will then automatically deduct or add the money to the other account.

Any such program, of course, requires some effort on the part of the user. At the beginning you have to decide on how to split up your expenditure into separate budgets.

You can call the budgets whatever you want, although you are likely to use such labels as car, food, rent, mortgage and savings. For each category you can enter your estimated monthly expenditure, so that Money Mentor can check whether you are exceeding your figures. The program adds or subtracts the amounts you enter to keep a running total of how much you are spending. The program works on a monthly system of income and expenses. At the end of each month it will report on the expenditure for that month and previous ones and for the amount spent for the year so far. From the information it can produce reports in the form of tables or bar charts, which can be printed out. These reports can show the difference between your estimates and your actual costs.



It can also use the information to provide a projection of costs for the rest of the year, although this works best when there is six months' information on which to work.

Apart from budgets, each account, up

continued on page 69

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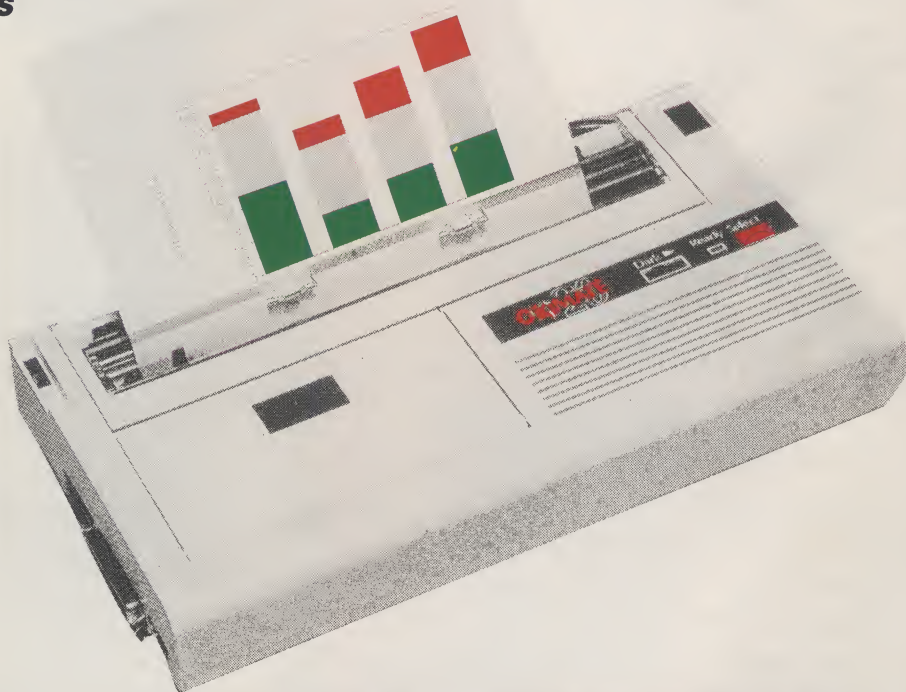
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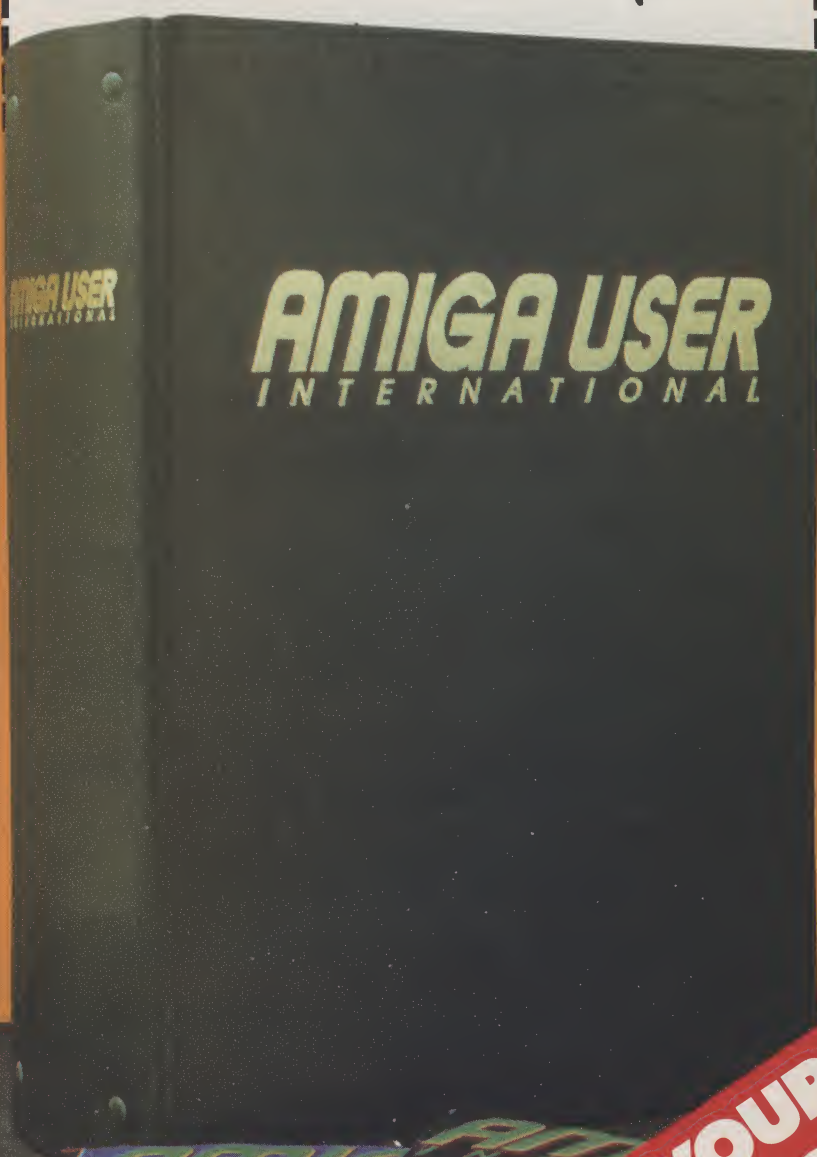
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continued from page 65

MONEY MENTOR

to 30, keeps track of money coming in and going out – whether it is a bank account, a savings account or a credit card account. You can transfer money between two of your accounts without confusing the system and also split payments between different budgets – so that if you bought food and clothes from the same shop the right amounts can be entered in the correct columns.

You can search accounts to extract various information: to check your bank statement or to work out such things as how much you spent on clothes in any combination of months. Each item you enter into an account – called a Transaction by the program – can include a memo so that you know exactly how, or on what, you spent the money. Each transaction requires nine separate items of information to be entered. For the first month you will need to type most of it yourself. After that, Smart Scrolls does the hard work for you.

Money Mentor's reporting facilities make use of the Amiga's graphics capabilities to produce bar charts and tables at speed and in colour. Here when you are in the red, you see it in red.

You can also print out the reports if you have a printer attached that is compatible with Preference's printer drivers.

More than 50 different reports are generated by the program. You can get the year-to-date by account names or expenses and income by each month or each quarter together with the variance between actual and estimated expenditure. You can also sort your budgets and accounts by various criteria. For example, you can discover which are your Top 20 problem accounts. These show where there is the greatest discrepancy between actual and estimated income or spending.

Money Mentor comes on one unprotected disk and will run on any Amiga. You need an additional blank disk for your data.

The manual is indexed, clearly set out and includes a detailed tutorial on how to use the program. It is a model of what a manual should be, being well-printed and easy to understand.

In its new version 2.0 Money Mentor is the easiest-to-use and most comprehensive personal financial manager I have seen on any computer. In the way it makes life simple for the user it is an object lesson to programmers of other applications. Its Smart Scrolls system is a real time saver.

Its main limitation is that it presents all information on a monthly system. I have

discovered from my own minor involvement in creating a money management system for another computer that there are those who need a weekly breakdown of income and expenditure. It would be helpful if Money Mentor offered that option. Unfortunately there is one major drawback for would-be British or European users of the program. Money Mentor at the moment is designed for American usage. It records transactions in dollars and cents only. You have to enter dates the US way – by month, day, year. Money Mentor will even print your cheques for you as you enter the information; but to do that it needs Delux Computer Cheque forms from a company in Minnesota.

You can note what items of income or expenditure are taxable or tax-deductible, but Money Mentor does not know about VAT. Personally, I would like it to be able to keep track of my VAT payments.

It is possible that a British or European version of the program will appear but it will need to do a little more than substitute other currencies for the dollar sign.

In the meantime, if you can live with the Americanisms Money Mentor will keep track of your finances in a comprehensive fashion. Buying the program would be money well spent. **J.W.**

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CYGNUS ED PROFESSIONAL

***A text editor or a word processor?
Howard Oakley puts it through its
paces and reveals all.***

The plain fact is that the vast majority of computer users spend most of their working time processing text, whether it is business correspondence or the source code of their next program. I, like a lot of these, am basically rather lazy and quickly settle down to using something not too complicated and thus end up preferring scribe! to Word Perfect, at least for most of the time. However, most word processors differ from programmer's text editors not only in their friendliness but also their emphasis on 'pretty' output (full justification, support for printer features, etc.). On the other hand, text editors excel at the generation of sophisticated macro commands, search and replace facilities and other powerful tools which the programmer needs.

CygnusEd Professional is described as being an editing system, rather than a word processor but I think that this is too modest a claim. I, for one, have now abandoned my word processing programs in favour of it and I am sure that many others will.

"The scrolling routines make full use of the blitter to scroll at a rate of up to 30,000 characters output per second."

Like some versions of MicroEMACS for the Amiga, it has a full Intuition-style interface, with well designed menus, pop-up requestors, a scroll bar and so on, whilst retaining an extensive, customisable and reasonably orthodox range of keystroke commands. It uses colour intelligently and will run from Workbench or a CLI. Formatting features offered included full and centre justification and flexible handling of indented sections. On the other hand, it provides minimal facilities for printing, no choice of fonts or style and no output or page formatting. In traditional minicomputer style, these are all dependent upon a separate program

and ASDG (who are the publishers of CygnusEd) have very wisely included a copy of the excellent public domain formatter, PROFF.

A great deal of attention has been paid to making CygnusEd fast as well as flexible. Much of its source code was written in optimised assembler and the scrolling routines makes full use of the blitter to scroll at a rate of up to 30,000 characters output per second. You need not worry as to how long searching will take either, for search speed is claimed to reach 100,000 characters per second and I believe it. CygnusSoft, who wrote it, also tried to make the interface faster for the user — requesters and dialogs appear at the current pointer position, so you do not have to chase them around the screen all the time. These are typical of the attention to detail which makes this such a high-quality product.

CygnusEd is also unusual in that it has hooks built into it for ARexx. It is not the only such editor (TxE Plus, for example, also has this feature) but it turns an already very powerful editor into almost anything that the user might wish — even an unashamed word processor! Indeed, as if to demonstrate how versatile CygnusEd is, a set of macros is provided to turn it into MicroEMACS.

It also has ingenious commands to enable the construction of tables, including the ability to copy vertical text column blocks. Rather than establishing separate windows for multiple document editing, CygnusEd opts for what it terms 'views'. Up to ten views can be open at the same time and they can be of any combination of up to ten open files — for example, you could have three views of one file, two of another and five single files views all at the same time. Screen colours are customisable and there are four 'bookmarks' which can be placed in each view to make moving around quicker.

CygnusEd comes on a single disk without copy protection, which contains the editor itself, startup and other utilities, PROFF and various files demonstrating its customisation from macros, C and

assembler programs and ARexx. The accompanying manual is a bound in an A4 ring-file and has 98 pages which describe CygnusEd in detail, although you have to print out the PROFF manual separately from the disk. The hardware required is any Amiga with at least 512K memory and Kickstart 1.2 or later.

Rather than repeatedly starting up and then quitting the editor, it is possible to leave it resident in memory. There is thus ample scope for forgetting whether or not it is still available. A startup utility, ED, can be run to load afresh or re-activate CygnusEd but does suffer from a minor bug. Because it uses a file lock, it passes the fully expanded file names as parameters to CygnusEd, which may then not be able to cope with them. My hard disk is named "Howard's Hard Disk" and if I call ED to edit a couple of files from the CLI, then there will be various confused requesters prompting me to insert "Volume Hard:" and I wind up with a host of editing views entitled "Howard's", "Hard" and so on. This bug probably stems from one in AmigaDOS itself, of which Commodore are aware (and supposed to be correcting). Calling CygnusEd directly does not suffer from this problem, so it is easy to open up to ten files for simultaneous editing.

Safety has also been high in the list of priorities. Although CygnusEd does not backup files all over the place, you can opt to make 'safe saves' which endeavour to get round the possibility of a crash during file writing, there is an excellent timed save facility (which periodically tells you how many changes you have made and asks if you wish to save) and a utility which can be invoked when a crash happens, to save work in progress. It is very reassuring that someone else is worried about the case I lose my work!

The ARexx interface demos are also very impressive. Straightforward programs can drive CygnusEd to take in a document, perform a lengthy sequence of automatic editing, interact with the user and even do a few showoff tricks. Using such a program can be accom-

CYGNUS ED PROFESSIONAL

plished by menu options from within CygnusEd itself (which can install ARexx and DOS commands to be run from the function keys) or it can simply be run as a CLI command whilst CygnusEd is running. Unfortunately, you need to be careful to specify both the source directory correctly and supply the .rexx file extension (which ARexx and WShell assume as a default) if you wish to run ARexx programs from within CygnusEd as such.

CygnusEd's only annoying feature is that, whilst it copes very happily with PAL screens, it insists in placing the bottom line of text right at the very bottom of the screen. Even after adjusting the vertical centring, it means that you will need to keep a couple of blank lines (carriage returns only) at the end of every file, so that you can actually see what is being added to the end. You can increase the effective size of the screen (up to a height of 1000 and a width of 800) and can work in interlace mode if you wish. The only other significant bug which I have been able to find is that the FORMAT command, which offers right ragged or full flush justification, can sometimes

strip all carriage returns from text and thus reduce a document into a single paragraph. This does not happen with files generated by Scribble! or CygnusEd, though.

"There is an excellent timed save facility (which periodically tells you how many changes you have made and asks if you wish to save."

I am sure that everyone will be able to think of a major facility which they would like added, although there cannot be many who could claim that this would be significant enough to deter from buying it – and in every case it would be straightforward to write a macro or ARexx program to satisfy their need. My personal submission for the 'wish list' is a menu command to reveal the number of words in the current document. I have therefore

implemented this as an ARexx program (given in the WShell review), which I can call from the WShell which I keep available.

This is the best (most powerful, friendly and customisable) text editor which I have yet seen for any microcomputer and the ARexx interface enables you to do some very clever things which would not be possible with most of its competitors. If you are content to be restricted to using text only (and do not want graphics set within your documents) and are prepared to learn to use PROFF's formatting commands, then CygnusEd and PROFF form an excellent combination for word processing – and it is this that I am now using in preference to any of the word processors (most of which were far more expensive) which I possess. And as more ARexx applications appear, the scope for using CygnusEd to do mail merged letters from Microfiche Filer Plus, for example, becomes very attractive.

If CygnusEd and other programs which have ARexx hooks, such as TxEt Plus, CAPE 68K and AmigaTEX, are anything to judge the future by, we can look forward to a flood of very powerful and integratable programs.

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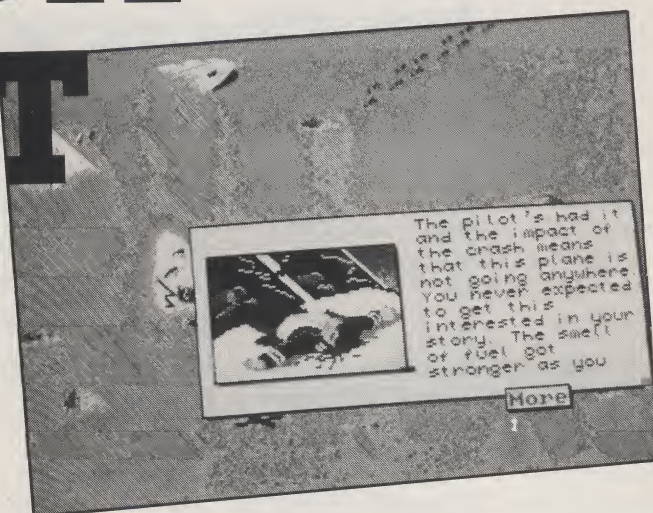
Mirrorsoft

I almost thought Eugene Evans had fallen victim, himself, to the infamous disappearing forces of the Bermuda Triangle, as this game has been in development for over 18 months. Mirrorsoft had confidently told us all at last year's PCW show that we would see this game "at the end of the month", after they had spent a considerable amount of dosh buying space for the ads in a fair number of magazines. Almost exactly a year later and BERMUDA PROJECT has finally arrived. Was it worth the wait? I think so. What we have here is an animated adventure game with an original plot and graphics that do it justice.

The mystery of the disappearance of ships and aircraft from the Bermuda Triangle (the area of sea that stretches from Bermuda to the tip of Florida and East to the Virgin Islands in the Caribbean) is one of the most popular of unexplained happenings of modern day. The disappearances have been reported regularly since 1945 when five US Navy planes vanished off the coast of Florida, then, inexplicably, one of the search planes also failed to return. What makes it all so strange is that no wreckage or bodies have been discovered in over 30 incidents. There have also been reports of strange lights, mists or ghostly visions from pilots and sea captains when navigating the Triangle. Some people attribute the famous Marie Celeste incident to the BT as well as a host of other historical disasters.

What this means is that you, as a well known investigative journalist are sent to discover the whereabouts of two planes that have just vanished carrying, not only valuable cargo but a number of well known passengers including a senior reporter from the New York Star who was sent out to investigate the Triangle.

As you fly over the area, your plane develops a fault and crash lands on an Island deep inside the Triangle. This is where the game starts for real, and opens with you (fortunately having survived the crash) standing amidst the wreckage of your plane near to the body of the pilot. By pointing the mouse cursor you can move about the scrolling island trying to pick up clues. The first puzzle you must solve is how to put out the fire that has started near the passenger door section, as there could well be vital equipment inside. If you leave the fire to burn itself out, the heat will seal the door completely, so water and something to carry it in, is needed pretty quick.



When you come to something you would like to examine, you press the left mouse button and a menu will appear that will allow you to select EXAMINE, GET, DROP, USE etc. This is a very fussy routine I promise you, as the menu and messages will only stay on the screen whilst the right hand button is held down. Selections are made by moving the cursor to the required option and pressing the left mouse button. I found this method tedious in the extreme as it is quite easy to lift your finger from the button and have to do the whole process over again if you did not manage to read the description.

That apart, the rest of the game flows along pretty well and some of the puzzles are well designed. For instance, not too far from your crash site you find a jeep adjacent to a long dead skeleton of its former owner. The ignition key is on a chain round its neck but you cannot get the key because a scorpion guards it. To get the right object to dispose of the scorpion requires further exploration of the island. That is what is great about a good puzzle, your goal is in sight but you cannot get to it. Frustrated? You bet! On your travels you meet a host of strange and dangerous people, from mad stowaways to cannibals and run the risk of instant death exploring voodoo villages. It is all quite tense and atmospheric and let's face it, most animated adventures just do not seem realistic enough. The Bermuda Project has been thoughtfully designed (maybe that is why it took so long to finish) and has all the ingredients of a good text adventure but animated before your eyes.

It would have been a lot easier for Mirrorsoft to forget the whole thing. After all, when something has been in development for this amount of time and the result is poor what would be the point of releasing it? Thankfully Bermuda Project comes through, with my only reservation being the pop up menu/text routine which is so fussy. Other than that I can not fault it as it entertained me no end.

Price: £24.95

A.M.

TRON 500 VS EXTENSOR

Players

We received two games from Players this month based around the light cycle scene from the movie, *Tron*, probably the outstanding 'electronics games' film of all time. Computer versions of the famous scene have been around since the early days of computer gaming, so it seems a strange choice of subject to put onto the Amiga. How do they shape up? Read on...

Tron 500

According to the title screen, the game's name is *Tron 500*. On the other hand if you read the instructions you will find its is called *Atron 5000*, and a glance at the disk will lead you to think it is really *Antron 5000*. It would be nice if Players could decide on a name. Maybe the owners of the film rights might have objected to the name of just 'TRON'...

Two scrolling windows give views for both players. The idea is to guide your line (light cycle) around the playfield attempting to force your opponent to crash, either into an obstacle or your trail.



Tron 500 ↑

Diagonal travel is possible and sometimes a diagonal trail can be passed through. Tokens can be picked up for extra speed, a missile or to destroy an opponent's track. These extremely minor additions to the original concept are not enough to keep even a new-comer to computer gaming occupied for long.

Extensor

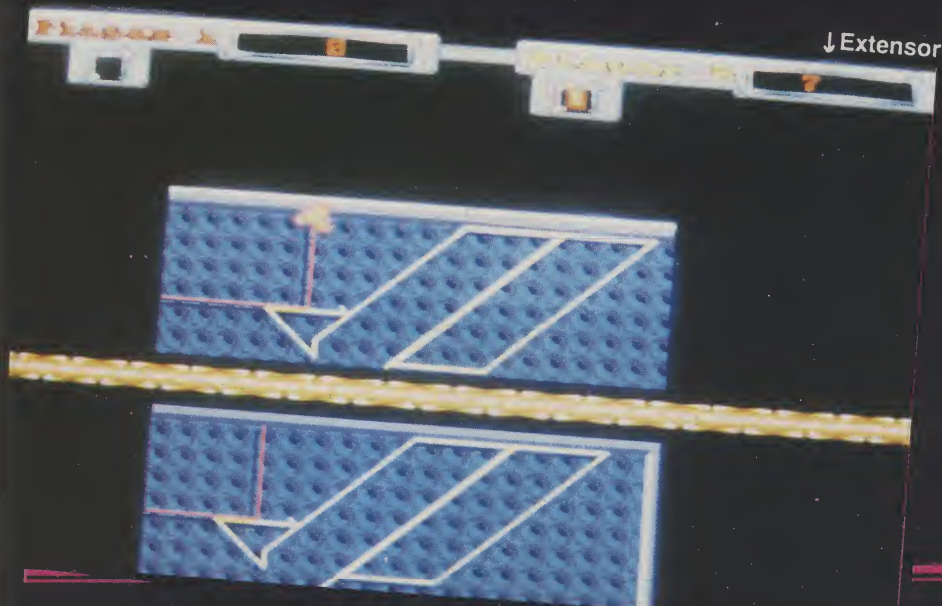
First impressions lead you to think *Extensor* is a more refined and advanced implementation of the theme than *Tron 500*. Most of the screen is taken up by a 3D view from the front of the light cycle. One of a number of formations of obstacles makes travel around the grid more tricky. These are seen as solid walls which move smoothly towards you, though the effect of turning a corner is very weak.

A small window below the main view shows the plan view of the cycles (represented by lines as usual) but has no indication of the obstacles. Up to seven cycles can be in the game at once but all are drawn in red, so understanding what is going on is often impossible.

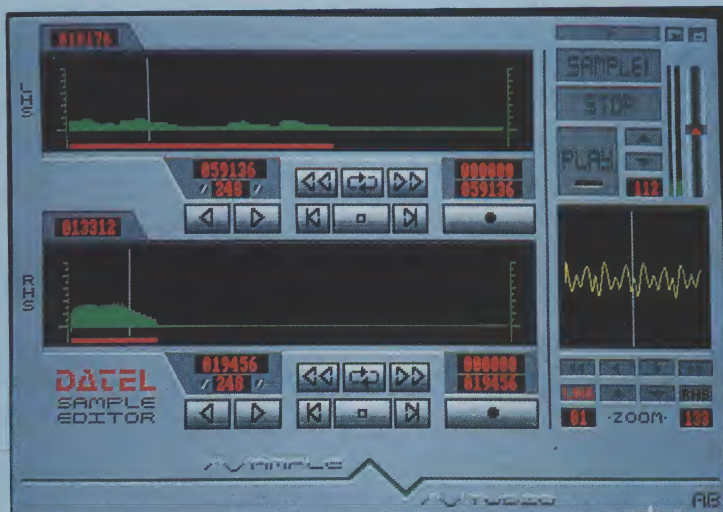
Neither *Tron 500* nor *Extensor* offer more than five minutes' uninteresting gameplay, and for fifteen pounds that is hardly good value. Anyone with a knowledge of basic would be better off writing their own version which would be educational and free

T.H.

Price: £14.95. each



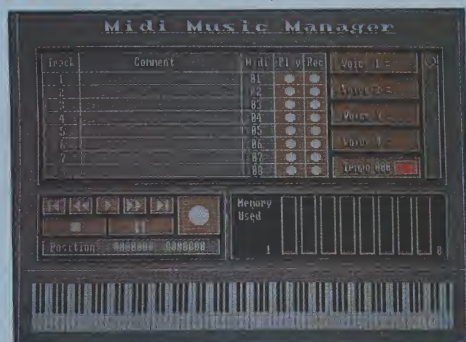
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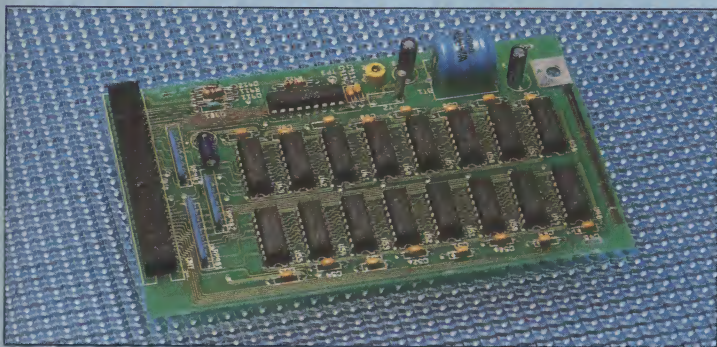
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Vectorball

Mastertronic

Following in the footsteps of Blastball, Mastertronic bring us another future sport: Vectorball.

Like Blastball, the game is played by two droids, the object being to shoot the ball into your opponent's goal at the end of the pitch. Where Vectorball differs from Blastball is in its pitches. These are made up of varying numbers of hills and ditches, effectively reproduced in one of two styles. Selecting shaded pitches can mean a wait of a couple of minutes while the computer generates the graphics. Alternatively, dotted pitches give slightly less solid looking backgrounds but are generated far more quickly.

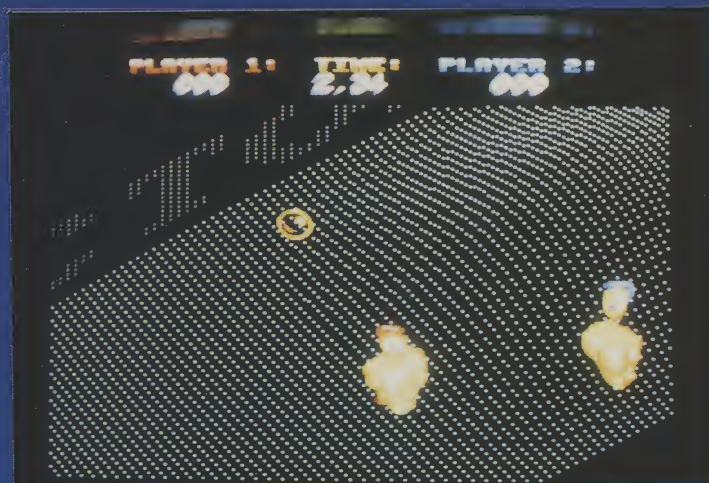
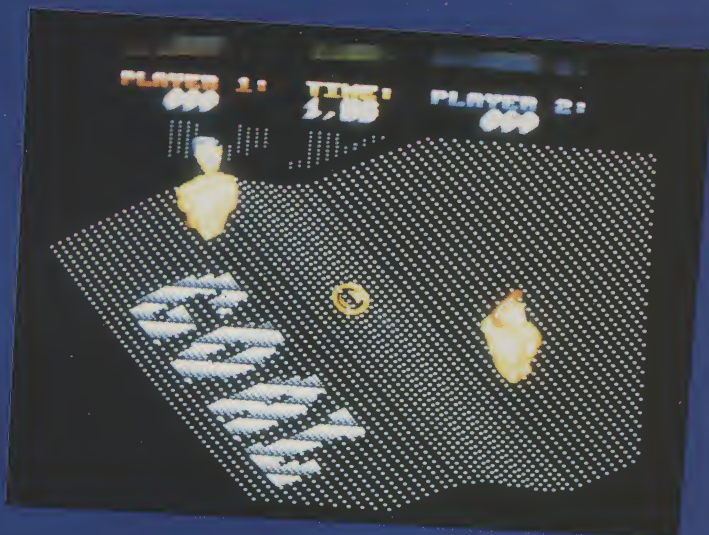
Standing out from the background are the two droids. They are strikingly shaded to give a polished gold look and are very smoothly animated as they rotate. Control of the droids is confusing to begin with. Because of the slanted 3D to the view-point, moving the joystick to the right moves the droid up and to the right along the line of the pitch. Once you come into possession of the ball the control method changes. Left and right are now used for rotation, up and down control the height of the head and fire shoots the ball. The head acts as a power meter, the higher it is, the faster the ball will be shot.

When shooting the ball the slopes of the pitch can be taken advantage of, allowing swerve shots to be played. In practice, most of your time is spent just trying to face in the right direction and build up power before shooting. There is very little time to plan your shot as the opposing droid will be right on top of you almost immediately, especially if you choose to play against the computer.

'A very pleasant and soothing piece of sampled synth music introduces the game along with a neat loading screen'

Although the sprites are very well animated as they rotate to line up shots, their movement across the pitch and the scrolling could have been improved. The droids tend to flit around the screen and the background scrolls in untidily large steps. A very pleasant and soothing piece of sampled synth music introduces the game along with a neat loading screen. In-game sounds are of a high quality but limited to shot, collision and goal effects.

Vectorball is a highly agreeable idea that makes a enjoyable game. Where it slightly slips up is that the games turn into a scramble for the ball, players



having to take hurried shots in order to keep possession. It has a lot of potential, some of which has maybe completely not been tapped. Nevertheless so it is certainly not a bad game and for the price will be worth consideration for the lively and challenging entertainment it provides.

T.H.

Graphics: 7
Sound: 7
Playability: 6
Value: 7
Price: £14.99

PD

FREE GRATIS AND PRACTICALLY NOTHING

(Public Domain Software)

***A little light relief this month as
Stuart Williams discovers the
delights of PD games.***



This month I have selected four classic games which are Public Domain or Shareware – something for everyone. A classic shoot-em-up, the original maze game, the Adventure game and a multi-player adventure with some very special features!

PacMan '87

If ever there was a gap to be filled in the software library of every Amiga games fan, it is a good PacMan. Just such a game is PacMan '87, a nostalgic yet up-to-date version of the old arcade classic for our favourite machine! PacMan '87 was written in 1987 (surprise, surprise!) by Steven Jacobs and Jim Boyd from the USA. This one is Shareware. That means if you like it and intend to use it regularly (and if not, why not?!), then you are morally obligated to send \$10 US to the authors, which will help finance more games.

Just in case you have not seen PacMan before (where have you been all

these years?), this is the game where you control a little round ball with chomping jaws, which has to be steered around a variety of mazes on different levels. The object of the game is to clear the screen of the coloured dots on the floor of the maze by eating them! Each dot eaten increases your score. In the four corners of the maze, special flashing dots are to be found. These are the 'power pills' which will enable you to put the bite on your enemies, four speedy PacMan-eating ghosts which lurk in the centre of the maze and chase you all over the place. When you eat these pills, the ghosts change colour and you can chase and eat them, scoring extra points.

So far, so good, but what are the updated features? Well, you can now exit to another level via flashing exits before cleaning the screen of dots; you can come back to this level later if you wish. Other levels have different colours and layouts and different hazards in addition to the ghosts, which brings me to the other new feature. Randomly placed

'energy traps' appear in some of the maze tunnels. If you hit one of these, you lose one of your five lives. In addition, electric fence barriers appear, which are equally deadly and moving daggers appear from some of the walls, challenging you to dash between them without being skewered!

PacMan '87 has a Top Ten high score table and options to turn the loud and very effective sound on or off and set the difficulty level, from a menu bar at the top of the screen. In addition, options to play, pause or quit appear at the base of the screen. All options are selected by mouse in the usual manner. Control of your PacMan is by joystick in port two.

While PacMan '87 is not what you could call original in concept, it is great fun and, while not remotely stretching the Amiga's powers, it is a superb implementation of a classic fun game. Definitely one for the collection. Supplied by the Amiga Users Group (UK) on their disk UKAUG18.

cont. on next page

continued from page 77

Amoeba Invaders

Yes, another golden oldie rears its head! Good old Space Invaders at its best on the Amiga, with traditional sound effects and graphics. While this one might not stand the games world on its head, Invaders is a game we should all have to remind us of the humble beginnings of computer games (anyone written Pong for the Amiga?)

This implementation, Amoeba Invaders, is faithful to the original and is Public Domain (alias Freeware) by the Late Night Developments Corp. Programming and sound is by Chris Halsall and artwork by Ewan Edwards. You have three lives and the usual four ground bases to hide behind as the little aliens stagger drunkenly from side-to-side and drop bombs on you. Control is by joystick or redefinable keys.

This is a neat version, with all the required features. While it might not wow today's games freaks, it is definitely a classic for the collection and has one particularly useful feature which the original never had; it is multitasking! Just add your own music by running Aegis Sonix in the background, or take a rest from writing by running it from within Scribble! I downloaded this one from CIX but you will probably find it on your favourite bulletin board or via your user group's PD library.

Empire

Have you ever wanted to create your own planet and dabble in its politics, economy, foreign policy, wars etc? Well, you too can now play God on the Amiga, thanks to Chris Gray, who re-wrote Peter Langston's original game using the Draco compiler.

This sophisticated system allows you to specify the layout of your planet to a limited degree, plus the amount and location of its mineral deposits and produces a world within which your game can last months. In use, it is very similar to some of the computer-moderated play by mail games currently available and it is multi-user, in as much as several players may take their turn to input instructions which the computer then acts upon. It is not even necessary for users to be present at the host micro, as, with a Hayes compatible auto answer modem, you can set up your Amiga to allow players to log on to your system for a specified length of time each day to make their moves! This, in effect, means you can have a game played internationally!

This program is well worth a look if you are into strategy games and especially if you are a comms fan. Twin disk drives will be useful for best use of the system, plus familiarity with the CLI. Version 1.0 of Empire is Shareware and includes Draco source code. You will find it on Fish Disk 118, available from George Thompson Services of Arran.

Colossal Cave Adventures

No dedicated adventure gamer can fail to have heard of the original Will Crowther and Don Woods Colossal Cave Adventure written on a main-frame computer years ago. This port to the Amiga has been extended to a 550 location version by authors David Platt, Ken Wellsch and Dave Haynie.

A traditional text adventure (it started the traditional!), this version has all the features – and more – of its honourable predecessors on CP/M machines, PC and just about everything else. One thing this implementation has which the others do not is Amiga speech! Text printed on the screen is also spoken – just the thing for the partially sighted user, though it might prove annoying to some, as the pronunciation leaves a little to be desired!

Do not expect Infocom-style parsers, as this one comes from the days of verb-non two word commands. However, it is great fun and still a challenge for all that. Be careful to make a map of every location and remember – XYXZZY (cryptic clue no. 11). Colossal Cave Adventure is Public Domain and is to be found on Fish Disk 82, available from George Thompson Services of Arran.

B.V.

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MAILSHOT PLUS & DIGICALC

Digita International have released two new business products for the Amiga. Paul Andreas Overaa finds that their budget price is not reflected in their quality.

MAILSHOT PLUS

MailShot Plus is a new mailing list Amiga program from Digita International. Like other Digita products MailShot Plus is available not just for the Amiga but for several other machines, including IBM compatibles. It is a point worth mentioning because, since the program is capable of serious use in a business environment, this could be an added advantage.

As the title suggests, MailShot Plus is a tool that was designed primarily to create, edit, search, sort and print address lists but it can, of course, be put to very good use in almost any area involving labelling.

The package is well presented and comes as a single disk together with a small but useful manual. The disk is not protected so a working copy can be made and the master disk safely locked away. MailShot Plus is a memory resident program so it is suitable even for single drive users.

Labels are created using a WYSIWYG (what you see is what you get) approach and although the display, in terms of other Amiga software, is fairly primitive there is little doubt that the facilities are functional and well thought out. Label lines can be up to 48 characters wide and twelve(?) lines deep. I am not sure whether it is me or Digita who cannot count because the maximum line display I could get was eleven . . . it does not really matter because, either way, it is enough.

A single disk can hold up to 3000 labels although on a 512k machine, because the data file is held in memory during editing, you will have a maximum file size of about 1500 addresses. Each label, incidentally, can have up to four 'memo' lines attached and in practice this is useful for extra 'private' notes.

Labels can be added to or deleted from a data file easily and it is possible to access any given label using a label number, a visual data scroll, or the built-in search facilities. MailShot's label layout editing facilities are also easy to use and include width, height, vertical and horizontal justification.

It is possible to sort alphabetically using either address lines or memo lines. You can, by using a marker scheme, even opt to use only part of a line. Searching also uses specified lines and markers and supports all common search conditions. A 'clash' detection condition is available to allow you to detect duplicate labels.

Setting up the print control is straightforward and the results effective. You have got full control over the horizontal and vertical spacing used and can specify multiple copies (up to 999). Labels can be numbered and you can even specify standard messages to appear on every label. Because you can direct the output to either the printer or a named disk file you can, if you wish, stockpile the printed output files for batch spooling at a later time.

MailShot is priced at £49.95 and at that price it is hard to think of anyone who could not get value for money. Perhaps the only people who will not benefit from the package will be those who already have mail list facilities as an integral part of some existing piece of software.

DIGICALC

DigiCalc is a new Amiga spreadsheet program from Digita International. The name is apt . . . the package in use is reminiscent of the 'SuperCalc' type spreadsheet variety. The program, which is supplied on a single unprotected disk, comes with a small but adequate manual. DigiCalc is a

memory resident program and can therefore be used easily with single drive machines. It is probably worth mentioning at this point that DigiCalc is also available for several other machines including IBM compatibles.

In terms of Amiga software the DigiCalc package is essentially a 'non-graphics' spreadsheet. It has far fewer 'bells and whistles' than the MaxiPlans of this world but nevertheless, Digita have been able to provide the majority of facilities that the average spreadsheet user will need. It is an easy package to use and if you have ever used a spreadsheet before then it will take less than 10 minutes before you are using DigiCalc productively.

"One particularly thoughtful idea is the ability to run an operating system command as a 'sub-process'"

Spreadsheets can be as large as 512 rows by 52 columns and can be password protected. Variable width cells, left/right and centre cell justification, zero suppression, locking, duplication of specified ranges, i.e. all the usual needs are catered for and each option is easy to use. Cell formulae calculations are supported by all of the usual arithmetic trigonometric and logarithmic operations and other useful functions such as MIN, MAX and AVERAGE are also available. The spreadsheet files themselves can be exported in ASCII format which, should you need it, gives a potential link to other software packages.

One particularly thoughtful idea is the ability to run an operating system command as a 'sub-process'. By clicking on the 'Os' gadget you can open CLI windows and perform a whole host of other useful AmigaDOS operations.

DigiCalc costs £39.95 and at this price it is a good buy for anyone who needs an Amiga based spreadsheet to handle most routine jobs. It is robust, easy to use and it quite simply does what it says it can do.

P.A.O.

MailShot Plus – Price £49.95
DigiCalc – Price £39.95
Contact: Digita International

On from Excellence!

One of the most respected names in the now not so short history of the Amiga is Microsystems. It is probably true to say that virtually everyone who has used an Amiga has tried Microsystems' Scribble, arguably the most widely employed word processing package on the Amiga. Though Scribble! arrived after Commodore's own w/p package, Textcraft, it soon overtook it as the most popular among the early A1000 owners and has continued to reach the Amiga community that has grown up around the A500, with which at one time, in the UK at least, Scribble was bundled.

Higher Level

When the A2000 began to be talked about, Microsystems started to think about another word processor package, one that would bring a much higher level of quality to Amiga w/p. So the concept of Excellence! was born. The person most responsible for the emergence of Excellence! as it is today was the President of MSS, Esther Lee Appleman.

MSS President is a young, impressive and attractive woman – a combination difficult enough to find anywhere but especially unusual in the computer world in a position of authority. While MSS has

been in the computer business for nearly ten years, also an unusual achievement in a highly volatile sector. Esther Lee Appleman has only directed MSS for just over year.

With a degree in Accountancy and a background as a programmer, she seems admirably suited to running a high tech company. She was in fact just an employee at one time but succeeded in buying out the shares of one of the major shareholders. An interesting confrontation came when she made an offer for the shares and another leading shareholder objected. He was persuaded to accept Esther as a colleague. It must have been pretty strong persuasion to because he and Esther later got married.

Esther admits that the first real product that MSS has produced under her direction is Excellence! and she is obviously very proud of it. She has been involved in every aspect including its programming and structuring; its whole marketing strategy too has been her responsibility. Unusually for a technical product, there has been a great deal of research put into finding just the right levels at which to aim. Even the advertising and packaging received the kind of attention that is rare in the somewhat disorganised world of

technically orientated products, with a specialised marketing consultancy, being called in to advise.

Excellence! is generally admitted to be the strongest w/p package to emerge for the Amiga since Word Perfect, though Esther Appleman would dispute that there is competition between the two. For a start, Excellence! has colour applications that Wordperfect does not. In a private presentation, she once in a reply to a question of IBM compatibility/similarity contemptuously converted the Excellence! on the Amiga to a green screen and showed just how Wordperfect should have done it. She carried out the exercise with such theatrical style that it provoked an immediate roar of laughter from the gathering of hardened Amiga users.

MSS lively President was born in New York but now enjoys the sunny living in Florida. She has plans that will bring Excellence-style and level programs into other areas of Amiga activity. As one of the most popular people at the recent AmiExpo, she was drawing constant interest to the Brown-Wagh stand. Excellence! is already making a substantial impact on the Amiga community in the U.S. and is beginning to move across the Atlantic into Europe, with the English version available now and MSS considering the translation into German. MSS and its young President are clearly a couple to watch.

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CHIPS

Their numbers are up!

Many readers of AUJ will be familiar with such numbers as 68000 and 68020. These are processors and their designation given by Motorola, the manufacturer. Convention in the computer industry dictates that device designations are usually numeric rather than actual names. I can only recall one manufacturer giving a name to a device. This was FAIRCHILD and the device was a processor called CLIPPER. Unfortunately, the processor never caught on and whether the name had anything to do with it is open to speculation.

The Motorola family consists of a large number of devices other than processors. The table shows some of them:

NUMBER	DESCRIPTION	USE	NUMBER	DESCRIPTION	USE
68000	16/32 bit CPU	microprocessor	68553	Dual Universal Serial Communication (DUSCC)	communication
68005	16/32 bit CPU 8 bit bus	microprocessor	68564	Serial Input/Output (SID)	input/output
68010	Virtual Memory 16/37 bit CPU	microprocessor	68590	Local Area Network Controller (LANGE)	communication
68020	32 bit CPU	microprocessor	68605	Serial Direct Memory Access (SDMA)	dma control
68030	Enhanced 32 bit CPU	microprocessor	68652	Multi-protocol Communications Controller (MPCC)	communication
68070	16/32 bit CPU	microcomputer unit	68653	Polynomial Generator Checker (PGC)	communication
68120	Intelligent Peripheral Controller (IPC)	printer control	68661	Enhanced Peripheral Communication Interface (EPCI)	communication
68121	Intelligent Peripheral Controller (IPC-NR)	printer control	68681	Dual UAKI (DUART)	communication
68122	Cluster Terminal Controller (CTC)	communication	68802	Local Area Network IEEE 802, 3 Standard	communication
68153	Bus Interrupt Module (BIM)	bus control	68874	Token Bus Controller (T8C)	communication
68154	Interrupt Generator (IBOR)	bus control	68851	Paged Memory Management Unit (PMMU)	memory management
68155	Interrupt Handler (IVHAN)	bus control	68881	Floating Point Coprocessor (PPCP)	coprocessor
68171	VMS Interface	bus control	68883	Enhanced Floating Point Coprocessor (EFPCP)	coprocessor
68172	VME Bus Controller (E-BUSCON)	bus control	68901	Multi Function Peripheral (MFF)	input/out
68173	VMS Bus Controller (B-BUSCON)	bus control	68905	Basic Memory Access Controller (BMAC-10)	memory management
68174	VME Bus Arbitration Module (E-BAM)	bus control	68906	Basic Memory Access Controller (BMAC-20)	memory management
68175	Bus Master (BUSCON)	bus control	68910	Memory Access Control for 68010 (MAC-10)	memory management
68184	Broadband Interface Controller (BIC)	communications	68920	Memory Access Control for 68020 (MAC-20)	memory management
68194	Carrierband Modem	communications			
68230	Parallel Interface/Timer (PI/T)	input-output			
68340	Dual Port RAM (DPR)	memory circuit			
68341	IEEE Floating Point (IEEEFP)	maths coprocessor			

Now you can really impress friends and colleagues by inserting a few numbers in your conversation. On a serious note, this list can serve as a useful reference.

B.D.

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In the world of computer chess, probably the most famous names are Dan and Kathe Spracklen. This renowned pair are the originators of Sargon, one of the first and finest chess-playing programs for the personal computer in the world. Now, after many years of development, Sargon III, winner of the PC World Magazine microcomputer chess tournament and internationally recognised as one of the strongest playing chess programs, arrives on the Amiga, courtesy of Logotron.

Although graphically Sargon III does not present as pretty a face as Electronic Arts' Chessmaster (there is no 3D representation of the board, for example, just the traditional but totally effective two-dimensional representation), in facilities and playing strength it is every bit a match for its rival. In fact, in recent tests and tournaments, Sargon III not only beat Chessmaster (the program) but also a real, live Chess Master rated 2209.

"Sargon has an impressive opening book (library) of some 68,000 moves and a collection of over 150 pre-stored classic games"

The game is entirely mouse-driven – options are selected from a series of pull-down menus while the moves themselves are made by pointing at the appropriate piece on the board. Alongside the main display are two optional windows containing the move list and Sargon's "thought" processes.



Sargon has an impressive opening book (library) of some 68,000 moves and a collection of over 150 pre-stored classic games and chess problems for replaying and solving.

A selection of playing levels is available, ranging from 5 seconds per move to 10 minutes a move. These levels compel Sargon to play in the time allocated – you, as the opponent, can take as long as you like! Sargon thinks on your time – that is, it will continue to plot and scheme while it is your turn to move. You can have an easier game at any of the levels by selecting the Easy Play option which prevents Sargon from doing this.

There is also an Infinity mode – once out of its opening library, Sargon will keep on looking for the best move until it finds a forced mate, is ordered by you to stop thinking and move, or has only a forced move that it can make. This mode is ideal for solving chess problems or duffing up your remote opponent if you indulge in postal chess!

Other features let you hear the moves being announced (by the built-in speech synthesiser), set up a position, change sides, make Sargon act as referee between two human players, take back moves, replay games, save or print out, change colours, cancel the opening library, offer a draw, enable/disable Sargon's ability to resign, invert the board, obtain a hint and let Sargon play against itself. Plenty of flexibility there, all right.

Every Amiga owner should have at least one good chess program in their collection so if you are looking for one that plays powerful chess with friendly and versatile features, Sargon III fits the bill perfectly. You may not win all, or many, of your games against Sargon – but you will certainly have a lifetime of challenge and entertainment trying. In long-term enjoyment and value for money terms, Sargon III has got to be a wise investment.

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B.C.

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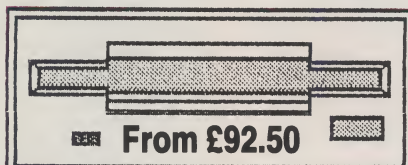
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TANGLEWOOD

Microdeal

Typical. It had to happen didn't it? There you were, willing to help out your Uncle in his hour of need like any worthy adventurer would do and how does he repay you? Leaves you with a load of machinery that is fit for the junk yard. I mean how on earth (or wherever) are you supposed to fight evil and restore order when all you get to fight with are five clapped out, knackered, rusty, never to see the light of day again, frankly ancient mining mobiles. Not really an auspicious way to begin any quest, let alone this one which is billed as a new concept in adventuring. No text entry, all graphics (supposedly over 700K of them) and totally mouse controlled. OK you say, great, no more working through the dictionary for alternative words or phrases, and no mapping. Wrong, Tanglewood is played in real time, and there are over 12,000 locations in which to recover missing mining rights within a 10 day deadline.

Before I pronounce a verdict on this new concept, let me take you through the basic plot and design.

Essentially, you control five ancient mining mobiles, each with its own separate system and data bank, which have to search the huge surface of the planet Tanglewood initially for D crystals and Ice Emeralds. Your Uncle was the sole owner of the mining rights to the Planet, (after buying them from a large company who was only to glad to be rid of them) and accidentally found that it contained some priceless stones. All of a sudden the original company claims that it never sold off the rights in the first place and steals the papers to boot. Faced with eviction from the Inter Galactic Court, your Uncle turns to you to find the missing papers (hidden deep in the enemy's subterranean HQ) before the case comes up in ten days. Knowing your Uncles taste for second hand equipment, you were not surprised to find the outdated machines that you have to work with.

Using these five machines, you explore the map by using the mouse to guide the mobiles around the planet's roads. This is shown in an overhead scrolling manner and movement can be quite a

tricky process. Your operating console is divided into four main areas, the greatest area being used for the view of the planet. Underneath this are four switches for the usual saving/restoring/pause or quite routines. Underneath this is an area for text readouts like data about objects found etc. The final area is to the right of the map screen where windows are placed for keeping objects found. Three more switches are located top right for program info, location description and time warping.



So far you would be forgiven for thinking you are reading about an arcade game. Well, in truth, Tanglewood is really an arcade strategy game with adventure elements. Those elements are in solving the problems that the mobile restrictions put on you in exploring the planet properly. There are many hidden surprises and unexplained rituals encountered along the way which are not dealt with in the manual, it will be up to you to solve the mysteries.

I found movement to be a very tricky business and somewhat frustrating as the mobile tries to follow the mouse anywhere on screen. I finally discovered a way to delve below the ground and this made my disk drive whirr into action. Aha, some more pretty graphics to look at I wondered? Sadly, the system changes either inside buildings or underground to static frame scenes which window blind to show a new direction. Not developing a scrolling action in this part of the program is covered in the manual by the mobile entering "unexplored regions where the visual display is undertaken by RP Transfer which throws up a possible landscape created by the data banks". In other words scrolling for some reason could not be programmed in so think up another reason.

The designers admit that Tanglewood is hard to get into. That is an understatement, they also say that it is nearly always possible to finish the game unless you do something stupid, that equally is an understatement. Tanglewood is a mish mash of an idea that goes in several directions without ever meeting up.

It is all very well coming up with a new concept, it is quite another to get it to work. As an adventurer, it does not work for me. I hated it.

A.M.

Price: £19.95

MIDI: AN INTRODUCTION

One of the Amiga's claims to fame is its advanced sound capabilities. For the professional musician, however, these often need to be supplemented with other instruments, which in turn can be controlled by an Amiga by using the MIDI standard. Paul Andreas Overaa, a musician himself, explains what MIDI is all about.

MIDI is an acronym for 'Musical Instrument Digital Interface' and is a communications framework designed originally to provide standardized digital communications between synthesizers, drum machines, sequencers, effects units and the like. Prior to the adoption of MIDI many synthesizer manufacturers set their own standards for such things as oscillator control voltages and gate protocols. A consequence of this was that linking equipment from different manufacturers frequently needed a 'suck it and see' approach – it was usually less than satisfactory and drum units came on the scene the situation got worse. A collection of individual 'standards' for clock rates, i.e. timing signals, resulted in more troubles for the musician wishing to use such equipment.

Various 'Band Aid' solutions, such as conversion boxes which enabled you to translate timing data or signal levels between different formats, had limited success but the real problem was that each manufacturers 'standards' were only cohe-

rent within the realms of their own products. From the user's viewpoint this situation was unsettling to say the very least. Manufacturers began to realize that this standardization problem was rapidly going to get worse unless some real effort was put into coming up with a workable and cost effective, solution. What happened was something that should be a lesson to everyone ... the major manufacturers, from countries as far apart as Japan and the United States, actually sat down and considered both the practical and the technical aspects of the problem. They came up with a working framework which aimed to allow all equipment to use a common communications protocol.

The end result was the suggestion that fast serial transfer based on optically isolated shielded twisted pair cable links would be used to transmit digital data using a well defined but flexible, multi-byte message protocol. The first specification I saw came from Sequential Circuits Inc., who on August 5th 1983 published a document outlining the essential details and entitled

the 'MIDI 1.0 Specification'. Those of you who have lost sleep struggling with the horrors of 'Standard' RS232C/V21/v22/V23 etc., serial communications problems will know what I mean when I say that those involved with the specification of the MIDI standard got it 'as near perfect as you could reasonably expect first time'. This is evidenced by the overwhelming acceptance of the MIDI standard by the music industry. Indeed, the use of MIDI is now spreading into less musical areas such as Hi-Fi equipment control, general electronic communications and data transfer. There is now no doubt at all that MIDI is here to stay, and little doubt that people will find increasingly diverse uses for it.

The MIDI Standard

As we have already mentioned MIDI messages are sent as streams of serial data. Each eight bit 'byte' is sent as a start bit, eight data bits and a stop bit at a speed of 31.25 KiloBaud ... so it takes about 320 millionths of a second to send one byte of MIDI data. Because the data is in digital form, as opposed to analogue signal form, it is far less prone to distortion or interference. Cables between each piece of equipment can be up to 50 feet long and in practice very few problems are encountered with the communications links themselves.

MIDI equipment will usually have two or three 'five pin' DIN sockets. The terminal marked MIDI 'IN' is where the equipment receives its MIDI data, that marked MIDI 'OUT' is where data is transmitted. Usually you will also find a MIDI 'THRU' socket which provides a duplicate of whatever is being received at the MIDI 'IN' terminal. Musical Instruments and related equipment communicate with each other by sending and receiving 'MIDI messages'. These messages fall into well defined groups but before we discuss the individual types two points need to be mentioned:

Firstly MIDI, by definition, distinguishes between status bytes and data bytes. Status bytes ALWAYS have the high bit (bit 7) set, i.e. they range from 1000 0000 binary to 1111 1111 binary. Each status

cont. on next page

continued from page 85

byte is either a complete MIDI message or it identifies a particular class of multi-byte MIDI message whose data bytes are about to follow. In other words the reception of a status byte tells the receiving equipment that a particular class of message is being received. Because bit 7 is used to indicate a status byte all data bytes which follow are therefore limited to values ranging from 0000 0000 binary to 0111 1111 binary, i.e. decimal 0 to decimal 127.

The second general point is that MIDI recognizes the existence of sixteen separate channels. A large class of MIDI messages, known as Channel messages, contain a channel number encoded within the status byte of the message. We will talk more about this next month but the overall effect is that it allows pieces of equipment to be selective about certain types of messages they send, receive or otherwise care to make use of. In practice this means that you can have drummers, sequencers, synthesizers, delay units, mixers etc., all attached to each other via a single MIDI communications cable loop and, providing each unit is set up to respond to a different MIDI channel, all your MIDI messages can be sent down the one MIDI line with each unit responding only to those channel messages that have the matching channel number identification.

MIDI at the highest level distinguishes between the channel messages just mentioned and messages of more general interest to the system. These latter 'System messages' fall into three sub-categories Real Time, Common, and Exclusive:

Real Time Messages

These are all single byte MIDI messages, so the status byte is the message itself. All of these messages are time critical which is why they have been designated as short messages. Here are the main real time message definitions:

Binary	Hexadecimal	Decimal	Name
1111 1000	F8	248	Timing Clock
1111 1010	FA	250	Start
1111 1011	FB	251	Continue
1111 1100	FC	252	Stop
1111 1110	FE	254	Active Sensing
1111 1111	FF	255	System Reset

Start and Stop messages are likely to be sent when you start and stop a sequencer or drum unit. The MIDI timing clock is sent at a rate of 24 clocks per quarter note, and it is this reference that enables units to synchronize to a common 'system' time. It goes without saying that only one unit should be generating this reference clock data. Sequencers, drummers, and master controller keyboards are usually capable of generating such clock data. In practice you decide which unit is going to generate the timing data and you then set up all remaining units so that they monitor, and

synchronize to, this external MIDI clock data.

Continue messages are sent when you do such things as restart a sequencer by releasing the pause button or restart a drummer by hitting the continue button. They enable units to resume the playing of a sequence from the point where it was stopped.

Active Sensing is basically a good idea. It is a 'dummy' status byte that enables equipment to tell if there has been a break in the communications line. Active sensing is sent every 300 milli-seconds whenever there is no other MIDI activity. The idea is that if you accidentally pull out a cable whilst your synthesizer is playing it will be able to recognize the fault and turn off any voice circuitry that is still sounding. At the time of writing the use of active sensing is 'optional' and the arrangement most commonly adopted is this If your units never receive active sensing bytes they will pretend active sensing 'does not exist'. If however active sensing bytes are received such units will then expect to either receive some type of MIDI message OR an active sensing message at least every 300 milli-second or the unit will kill any sound generation and return to a passive state.

System Reset messages instruct all units of the system to assume a 'just switched on' state. It is particularly useful to be able to initiate such commands from a matter keyboard especially when the power up state of individual units is itself programmable.

Because Real Time MIDI messages are time critical they can in fact be put into the data stream between the bytes of other multi-byte MIDI messages. This creates a minor problem if you are involved with writing MIDI software since it means that you have to continually monitor the received data for real time stuff even when you are in the middle of analysing another type of MIDI message.

Common messages

These are another class of system message intended for all units in a system. The three you will come across will be these

Song Position Pointer: By maintaining an internal register (holding the number of elapsed MIDI beats) some equipment is able to send other units messages that enable a sequence to be started from a point other than the beginning. This pointer message consists of a status byte followed by a 14 bit value (remember the two 'data' bytes cannot use bit 7) representing the number of MIDI beats (1 MIDI beat = 6 MIDI clocks) counted from the start.

status byte	1111 0010	Hexadecimal	Decimal
data low byte	0LLL LLLL	F2	242
data high byte	0HHH HHHH		

Song Select: This message identifies which song or sequence is to be played upon receipt of a 'start' message. It is a two byte message whose data byte can be any value between 0 and 127 decimal.

Song Select:	Binary	Hexadecimal	Decimal
status byte	1111 0011	F3	243
data byte	0LLL LLLL		

Tune Request: This single byte common message simply asks each unit within a system to tune itself. It primarily applies to synthesizers and sound expander modules. Bear in mind of course that this message when acted upon will NOT necessarily mean that the different units are in tune with each other.

Tune Request:	Binary	Hexadecimal	Decimal
status byte	1111 0110	F6	246

Exclusive Messages

Despite the acceptance of the MIDI framework as a communications protocol it was also recognized that most manufacturers of electronic equipment would need some means of incorporating specialist messages and data. The problem was solved by the concept of a System Exclusive Message class and this is how it functions ... each major manufacturer has been allotted an identification number. To send such a message the System Exclusive status byte is sent followed by the manufacturers I.D. code, after this comes as much data as is required (but it MUST all be with bit 7 low!). Lastly an End of System Exclusive (EOX) status byte is sent to indicate the completion of the message. When a unit recognizes that a system exclusive message is being received it will look at the I.D. code to see whether it is a message that is going to be of use. If the I.D. is not recognized the unit will ignore the message. In practice each manufacturer will incorporate additional checks within their own exclusive data and often the individual formats of such messages are quite complex. Manufacturers are expected to provide details to the formats of their system exclusive messages. Most do and it is usually very well presented.

System Exclusive:	Binary	Hexadecimal	Decimal
status byte	1111 0000	F0	240
manufacturers I.D.	0III IIII		
any amount of data	(0*** ***)		
EOX	1111 0111	F7	247

Manufacturers ID numbers: Here are a few of the identification numbers that have been assigned....

Sequential Circuits	01H
Yamaha	43H
Moog Music	04H
Roland	41H
Bon Temp	20H
Korg	42H
Oberheim	10H
Lexicon	06H
Passport Designs	05H

That is about all we have time for this month. Next month we will have a look at the other main class of messages, the channel messages.

P.A.O.



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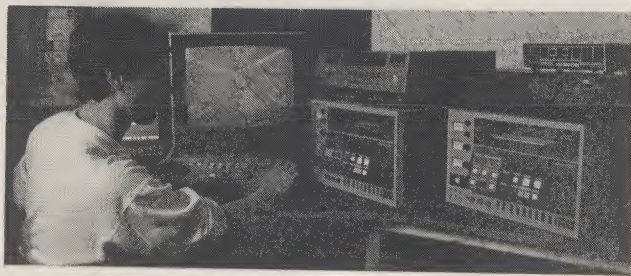
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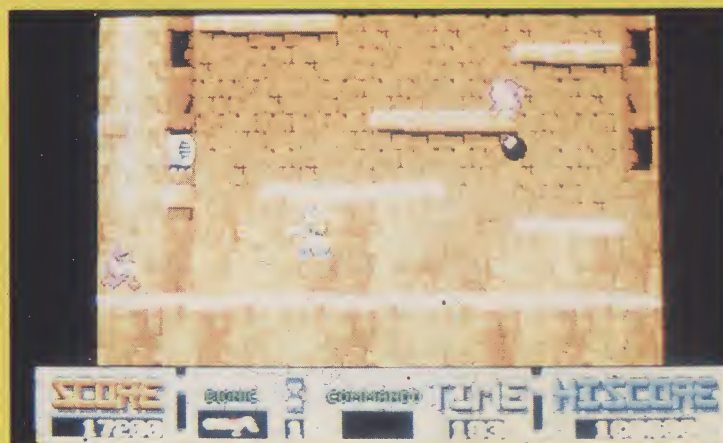
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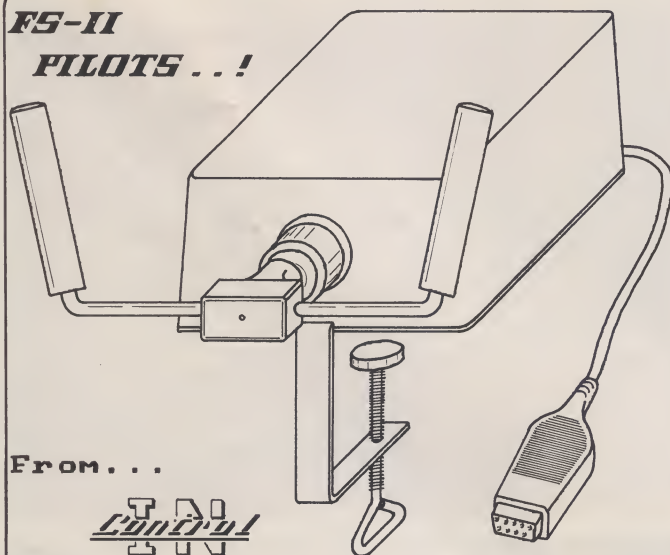
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AMIGA DISPLAY STRUCTURES

(As the Hardware Sees Them)

The Amiga is a powerful machine, capable of some amazing feats. This power, however, comes at a price – its advanced features require advanced programming techniques that can often be difficult to grasp. Betty Clay has taken it upon herself to learn all there is to know about the Amiga and to impart some of that knowledge to others. This month Betty starts a series on Amiga Graphics. First a few words about Betty...



Betty Clay has been a teacher for thirty one years. Her professional training included a BA degree with majors in English and in mathematics and MA degrees in religious education and in the psychology of counselling and guidance. When her school purchased computers, she was asked to design and teach the course in computer programming. Within three months, she had purchased her first computer (a Commodore 8032), written a text for the course, become a competent BASIC programmer and was permanently fascinated by computers. Since that time, she has taught computer programming in the public schools, in teacher training classes and at the junior college level. Her former hobby, genealogy, was completely crowded out.

After writing materials for the school system for many years, Betty has recently turned her efforts toward writing about the Amiga. Her articles have appeared in several American magazines and she writes regularly for the ICPUG newsletter. She writes a column for STARTEXT, the teletext service of the Fort Worth Star – Telegram. She is assistant editor of her own club newsletter and is also the club's software librarian.

Telecommunications is a special interest and Betty has recently been invited to become one of the sysops in the AmigaForum of CompuServe, the largest of the American telecommunication networks. Her special assignment in that forum is to direct conferences in the AmigaArts section, which is devoted to all creative uses of the Amiga.

Betty grew up near Hot Springs, Arkansas but has lived in the Fort Worth – Dallas area most of her adult life. She is married to a professor of electronics (retired) and has a son, a daughter and one grandson.

Programming the Amiga's graphics can be done at many levels. It is possible to program the Amiga without understanding how very much of it works. There are commercial packages available that permit the user to draw what he wants with a paint program and the package will turn the drawing into programming code for the image drawn. Public domain programs such as IFF2C do a similar task. Most programming texts begin by showing how to open a screen and then a window upon that screen, using the structures from the compiler disk. They tend to emphasize that understanding how the routines work is not vital; one only needs to know how to call the structures and how to fill them in. They make little reference to the hardware and the underlying support that makes the graphics displays possible. This article starts from the opposite viewpoint – from the chips themselves.

The hardware determines the display facilities and the software manages the rendering of the display. While the two are so closely related that there is even overlapping of the terminology used, they are not the same. The display routines are responsible for setting up the bitplanes and bitmaps and for the structures needed to support the bitmaps. The rendering functions deal with the drawing routines that fill the bitmaps with information and with the handling of that information on and off screen.

IN THE CHIPS

Almost everyone is aware that the Amiga's superb graphics are possible because of the three coprocessor chips originally called the PAD – Paula, Agnes and Denise. In more recent machines, we have Fat Agnes and Gary. Future enhancements will bring us an even Fatter Agnes and perhaps others. The exact duties of these chips is difficult to sort out. Each of them has a part in handling various kinds of operations. For that reason, most of us simply think of them as a single unit, even though they are separate utilities. The major duties of the chips, however, is to handle the graphics and input/output, leaving the 68000 to run full speed with only minimal attention to these time-consuming items.

Residing within the custom chips are two very special processors called the Copper and the Blitter. Each of these processors can work automatically from the high level structures and each can be controlled at lower levels with simpler structures.

This article will not address the Blitter, except to mention that it is used for the manipulation of all of the graphics (and other data as well.) The best help in understanding the Blitter is to be found in Thomas Rokiki's BLITLAB3 program, available on Fish disks or from user group libraries. It has a large manual included in the file and provides a visual "blitter" simulation to play with as you work your way through the manual. It is highly recommended that anyone interested in Amiga graphics spend some time with BLITLAB3.

The Copper controls the greater part of the Amiga's hardware-level graphics

cont. on next page

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system and has the ability to control the registers in all of the special chips, as well as (on certain occasions) those of the 68000 itself. With all of this power, it has an instruction set so simple that it contains only three items: Move, Wait and Skip. The Copper works its magic from a Copper List, which consists of a set of Move, Wait, or Skip instructions. The 'Move' instruction permits the Copper to transfer data from RAM to a register, which will then move it to the screen. 'Wait' compares a desired set of coordinates with the actual position of the beam and the Copper then waits until the beam reaches that position before it executes the next item on the Copper list. 'Skip' is used in the more advanced applications and causes the Copper to skip over the next instruction if the beam has passed the desired location before the desired action has taken place. A 'Copper list' will consist mostly of 'Move' and 'Wait' instructions. With only these two items but working with various registers, the Copper controls the rest of the graphics system: Views, ViewPorts, Rasters, RastPorts, Layers, Sprites, Bobs, Gels, Screens and Windows.

An understanding of the graphics support must begin at the very foundation. The rasters and bitmaps that control the simple "playfield" provide the level nearest the chips.

RASTERS AND BITMAPS

The term raster was adopted from the television world and in that context, a raster is simply the set of lines on which the display will be drawn. On an NTSC display, in normal resolution (640 × 200 pixels) there are 200 lines; on a PAL display, 256 lines. An electronic beam begins at the upper left corner of the display, sweeps across the top line and then skips to the left edge again in order to sweep across the second line, painting the screen as it goes. This is repeated until the last line of the display is painted and then the beam jumps back to the upper left corner to begin again. A complete scan from upper left to lower right is called a video frame.

For an interlaced screen, things happen in a slightly different way. An interlaced screen has twice as many lines. This is handled by having the beam sweep across the odd numbered lines in one pass, then jump to the top and sweep from the upper left corner to the lower right or a normal screen. For an interlaced screen, one sixtieth of a second is used for the odd numbered lines and another sixtieth of a second for the even numbered lines, thus requiring one thirtieth of a second to cover the entire display. That all of these lines

appear to be on the screen at one time is due partly to optical illusion (the tendency of the eye to continue to see something after it has really gone) and partly to persistence (the tendency of the screen phosphors to continue emitting light after the beam has passed). The colours fade away and by the time they are gone, the beam will have come back to repaint them, so they appear to be there all the time.

The video display is not always the exact size of the monitor or television screen. Many monitors are built so that there is distortion of the display at the corners and edges, so it is customary to begin the display about a half inch from the upper left corner. Sometimes the programmer will want to make a larger display and have the screen scroll about showing different parts. The electronic beam, then, is frequently swept over a larger area than can be displayed, both horizontally and vertically. In low resolution, the viewing area will be 320 pixels across and 200 (NTSC) lines deep but the beam will normally sweep across as much as 352 pixels horizontally and up to 262 lines vertically (though peculiar things happen when more than 255 are used.) For high resolution, the number of pixels is doubled horizontally; for interlace, the number of lines is doubled. The practice of creating a display larger than that actually seen is called overscan. The blitter we now have cannot handle more than 1008 × 800 pixels; the "fatter Agnes" will manage the full 1024 × 1024 of which Amiga is capable. A full megabyte of chip RAM, soon to be available, will also help those who want to create such large displays.

Very closely connected to the raster (so closely that at least one writer uses the terms as synonyms) is the bitmap. From the hardware viewpoint, a bitmap is said to be a contiguous block of memory. In order to create one or more displays for a program, it is necessary to clear blocks of chip memory that can hold the bitmaps and the support structures for them. At first, these locations are set in place but hold no drawing information — they are just cleared memory and empty structures. The cleared areas and empty structures must then be filled in with the software in order to create a real display.

A bitmap structure is not at all complicated. It sets the number of bytes per row, the number of rows (the width and height of the display), some flags, the number of bitplanes defined (the depth), a padding byte if needed to make sure that everything is on even numbered boundaries and has a pointer to each bitplane that is defined. It always describes at least one but perhaps as many as eight bitplanes. Currently, a normal display uses five or fewer bitplanes; a dual playfield or hold-and-modify display uses six. The seventh and eighth are

merely possible in case of expansion at a later time.

A bitplane is a description of the off-on condition of the bits needed for exactly two colours. The colours can be chosen from the 4096 possible shades and the colours will be stored in a ColorTable. To understand how a bitplane is stored in memory, imagine that you are seeing the display as a set of little squares, like the squared paper used for drawing graphs in school. Every square can represent a single pixel. Each square must be filled with one of two colours but these are represented by zeros and ones. When the picture is complete, imagine those squares being cut apart by rows and the rows pasted end to end. This means that your rectangular picture is now one long row of little squares. The instructions for a bitmap are held in memory in one long continuous list but they represent the rectangular display. As the electronic beam sweeps from left to right across the screen, the colour for each bit is read from this bitmap and the beam follows that instruction to paint the screen. When it completes the first line, it moves to the next scan line, reads the bits needed to paint that line and so on down the screen — and down the bitmap.

Would that be helped by an example? I thought so. Suppose that X represents the binary one and "." represents the binary zero. Here is the way a very small rectangle would be stored in memory (using sixteen bit words, as is done in the Amiga):

.....XX.....XX..XX.....XX....(linear memory)

And here is how that extremely small rectangle would be displayed:

.....XX.....
.....XX..XX.....
.....XX.....

On a normal low-res screen, it takes 320 bits (40 bytes or 20 words) for each screen line and 256 lines, so a PAL display would take 20 × 256, or 5120 16-bit words for each bitplane.

Most displays require more than two colours. To obtain more colours, it is necessary to use more bitplanes. The number of planes used is called the depth of the display. Each pixel in each bitplane can only be off or on but when several bitplanes are defined, the colour choices increase rapidly, because each extra bitplane permits twice as many colours as before. This is a bit hard to visualize but try to think of two planes stacked one in front of the other. Taking a pixel from the front plane and a pixel at the exact same location on the back plane, each pixel can still be on or off. The pixels on each plane can be of different colours. On a standard workbench, for example, there are two planes to make four colours. Here is how it works. (Remember that the pixel in ques-

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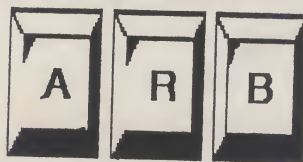
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Marauder 2
MCC Toolkit With Multi-user Utility
Metascope Debugger
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Modula-2 Developers Version
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68020/68881 Fast/math's Piggyback Board
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A4 Graphics Tablet
Alegria 512K Memory Expansion Board
Amiga Dust Cover (A500)
Amiga Dust Cover (A1000)
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Digi-Droid
DigiPic 32 level frame grabber
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Genlock (A500/A2000)
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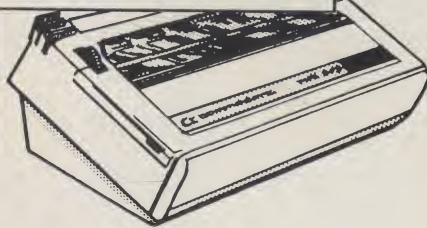
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continued from page 92

AMIGA DISPLAY STRUCTURES

tion has the same coordinates in each of the two planes.

23 or eight colours; four bitplanes, 24 or sixteen colours; and five bitplanes give 25 or 32 colour choices.

It is important to understand that the combination of colours on the various bitplanes do not determine the colours in the display according to the usual rules for mixing colours. Those numbers refer

to any one of the 4096 colours available, though it is customary to sort them from lightest to darkest. The Amiga calls on the proper register to get the colour, rather than expecting the amounts of red, blue and green to be specified directly. This is sometimes called colour-indirection. One advantage of this

Bitplane		Results in: Colour	Bitplanes #			Place value			Colour:
2	1		3	2	1	4	2	1	
0	0	0+0=0, blue	0	0	0	0+0+0	=		0
0	1	0+1=1, white	0	0	1	0+0+1	=		1
1	0	2+0=2, black	0	1	0	0+1+0	=		2
1	1	2+1=3, orange	0	1	1	0+1+1	=		3
			1	0	0	1+0+0	=		4
			1	0	1	1+0+1	=		5
			1	1	0	1+1+0	=		6
			1	1	1	1+1+1	=		7

Notice that the values are added together using regular binary arithmetic to obtain the number of the colour register to be used for a particular pixel. If more planes are used, the procedure is the same but the number of possibilities increases by a power of two. Two bitplanes, four colours; three bitplanes yield

to the colour registers rather than to the actual colours themselves. There are 32 colour registers in the Amiga and five bitplanes allow 25 = 32 colours. Each register contains a 12-bit number that sets the amount of red, blue and green needed to make the colour represented in that register. Any register could be set

method is that the colours of the display can be changed by changing the colour table and the bitplane need not be changed at all. The same display could have more than one ColorTable, with the software causing a switch at the proper times.

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"Very quick, simple, equally suitable for small businesses, clubs, charities and education. Good value"
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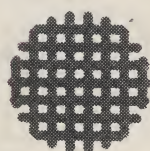
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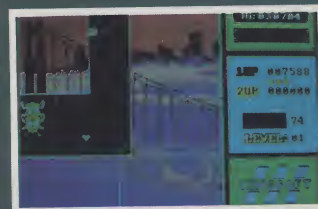
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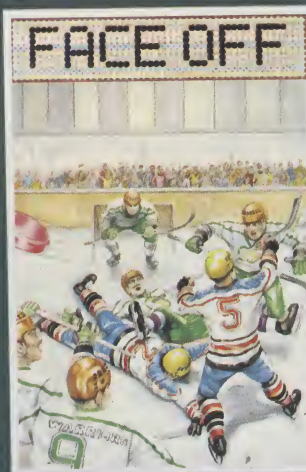
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